# Swiss Household Panel
# User Guide
# (1999 - 2013)

## Wave 15
## December 2014

By

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# CHAPTER 1 INTRODUCTION

## *1.1 Aims and Analytic Potential*

The principal aim of the Swiss Household Panel (SHP) is to observe social change, in particular, the dynamics of changing living conditions and social representations in the population of Switzerland. During the years 1998-2007, the Swiss Household Panel was a joint project run by the Swiss National Science Foundation, the Swiss Federal Statistical Office and the University of Neuchâtel. Since January 2008, the SHP is part of the Swiss Centre of Expertise in the Social Sciences (FORS), hosted by the University of Lausanne.

The creation of the SHP was one of the key structural measures implemented by the Swiss Priority Program "Switzerland Towards the Future" during the period 1998-2003 and had two main purposes (Farago 1996, Joye and Scherpenzeel 1997):

1) To ensure a solid database for social reporting on stability and changes in living arrangements and well-being in Switzerland, that complements data collected by the Swiss Federal Statistical Office;
2) To promote opportunities for quantitative social science research, by making high quality data available to Swiss social scientists and to the international social science research community.

The structure of the SHP was developed using insights from the social sciences and the experiences made by various panel surveys[1] in Europe and North America (Budowski et al. 1998, Budowski et al. 2001, Joye and Scherpenzeel 1997). It was based on theoretical work related to the structure and development of contemporary societies (Beck 1986, Eisenstadt 1990, Haferkamp 1990, Konietzka 1995, Leisering and Walker 1998, Mayer 1991, Müller and Schmid 1995), recent analyses of Swiss society and the way it functions (Höpflinger et al. 1991, Leu et al. 1997, Levy et al. 1997) and on literature about social monitoring (Davies 1994, Noll 1998).

Like other households panels, the SHP is a tool for fine-tuning our conceptions and analyses of social dynamics (Budowski et al. 2001, Berthoud and Gershuny 2000, Rose 1995). The dynamics at the macrosocial level do not directly belong to the field of observation covered by a panel survey. What panel surveys are intended to investigate, however, are the effects of changes at the macrosocial level on the living conditions of households and individuals, the manner in which these changes affect the individuals and households, and how they produce social change on a microsocial level. The main purpose of household panels is therefore to understand the processes, causes and effects of the social changes currently occurring. The data collected from household pan-

[1] Panel data is data collected about the same units at more than one point in time. It allows for insights into dynamic transformations – social processes and changes across time (Menard 1991). Instead of simply taking a snapshot of people and households at one given point in time, by interviewing the same households and their members annually, panel data enables the following; the observation of changes for the same entities, the reconstruction of the nature and development of their actions, the examination of precedents, concurrent dynamics, and the consequences of alternative strategies.

els supply *unique information*, allowing not only to estimate gross transitions but also providing an "understanding" of the transitions observed, i.e. the circumstances (family events, a change in the activity status, heath events, etc.) causing movements in and out of a given state (e.g. the fact that a household or an individual is living below a defined poverty line). In other words, by observing the same individuals over the course of time it is not only possible to study the change in numbers but also the flow of movements between the various states of being and to establish links of causality between different factors and events. Moreover, the SHP has two other main characteristics that increase its analytic potential. First, it is a comprehensive survey covering a broad range of fields and a variety of topics. This makes the SHP a valuable source of information for studies in different disciplines and also allows for cross-domain analyses. To keep up with changes in the field, the SHP occasionally modifies the questionnaire as well as adds new constructed variables to the dataset. Periodically modules of questions are evaluated and if needed revised, following feedback from experts in the field. A major criterion for any changes to the questionnaire is that it should not compromise comparability of the data over time. A second strong feature of the SHP is that all members of the households in the panel aged 14 years and over are interviewed. This allows for intra-household studies, such as the study of mutual influence of household members' attitudes and behaviour over time.

## *1.2 Institutional Setting*

To date, the SHP has experienced three main periods. In its first phase (1998-2003), when it was created by the Swiss Priority Program "Switzerland Towards the Future", the SHP was a joint project run by the Swiss National Science Foundation, the Swiss Federal Statistical Office and the University of Neuchâtel. At the end of the SPP "Switzerland Towards the Future", the SHP entered its second phase (2004-2007). Still located at the University of Neuchâtel, the SHP developed a joint venture project "Living in Switzerland-2020" aimed at conducting the Statistics of Income and Living Conditions (SILC) pilot study 2004-2005 in collaboration with the Swiss Federal Statistical Office. The SILC pilot data were distributed by the SHP until the end of 2008. During the whole period at the University of Neuchâtel, the SHP contributed to academic teaching. The third phase of the SHP is linked to the integration into the Swiss Centre of Expertise in the Social Sciences (FORS). Since 2008, the SHP continues to be funded by the Swiss National Science Foundation, and is part of FORS, hosted by the University of Lausanne.

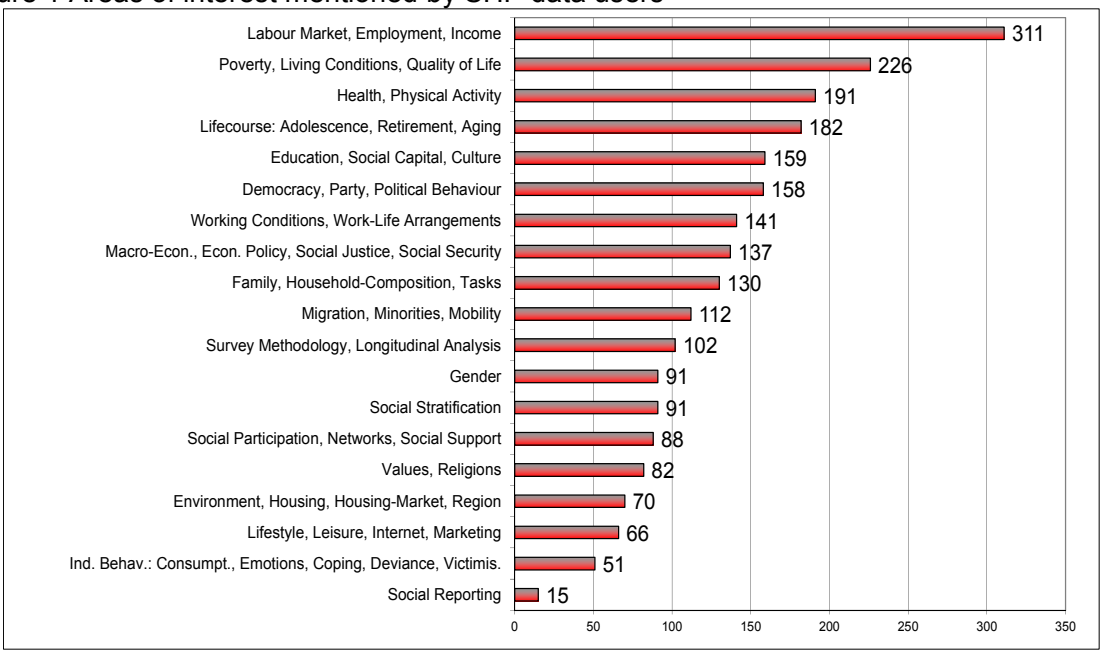
## *1.3 Use of the SHP*

When analysing the research domains reported by the SHP data users (n=1762), we found that around 2400 topics of interest were mentioned. **Figure 1** shows the relative importance of the single topic categories given by the SHP research network members.

The category with the topics "Labour Market, Employment, Income" leads the table. "Poverty, Living Conditions, Quality of Life", "Health, Physical Activity" and "Life Course: Adolescence, Retirement, Aging" are also among the most frequently listed researched topics. Moreover, around 300 users mentioned using the data in the framework of seminars and courses.

In conclusion, the active data users of the SHP research network cover a very broad spectrum of research domains. This is a strong indication that the multidisciplinary SHP survey serves the research needs of a very diversified and interdisciplinary academic community, both nationally and internationally.

Figure 1 Areas of interest mentioned by SHP data users


Labour Market, Employment, Income 311
Poverty, Living Conditions, Quality of Life 226
Health, Physical Activity 191
Lifecourse: Adolescence, Retirement, Aging 182
Education, Social Capital, Culture 159
Democracy, Party, Political Behaviour 158
Working Conditions, Work-Life Arrangements 141
Macro-Econ., Econ. Policy, Social Justice, Social Security 137
Family, Household-Composition, Tasks 130
Migration, Minorities, Mobility 112
Survey Methodology, Longitudinal Analysis 102
Gender 91
Social Stratification 91
Social Participation, Networks, Social Support 88
Values, Religions 82
Environment, Housing, Housing-Market, Region 70
Lifestyle, Leisure, Internet, Marketing 66
Ind. Behav.: Consumpt., Emotions, Coping, Deviance, Victimis. 51
Social Reporting 15
0 50 100 150 200 250 300 350

Since the start of the SHP in 1999, a great variety of issues of social and economic significance have been studied using the SHP data and many more questions can be addressed with the wealth of information the SHP contains. For example:

- *Evolving patterns in changing living conditions, quality of life and life satisfaction*: Who is progressively better or worse off and why? What are the necessary living conditions for warranting a good quality of life? Which objective and subjective factors most strongly determine life satisfaction?
- *Family life and interaction with society at large*: What are the consequences of various forms of living together in terms of social support and solidarity? Which "services" are produced and consumed within the family unit, obtained from the outside or provided by external bodies (e.g. care for children and the elderly)?
- *Labour market participation, work and life satisfaction*: What are the different forms of labour market participation (full-time vs. part-time employment, precarious and insecure employment, sub-employment vs. over-employment, under- and over-qualification, etc.) and their relationship to work and life satisfaction? How do people (especially women with small children) manage conflicting demands from the workplace and from home?
- *Poverty and social exclusion*: What kinds of living conditions are associated with poverty and social exclusion? What are the family and individual characteristics of the poor and what is the mechanism, which leads them out of poverty? Who

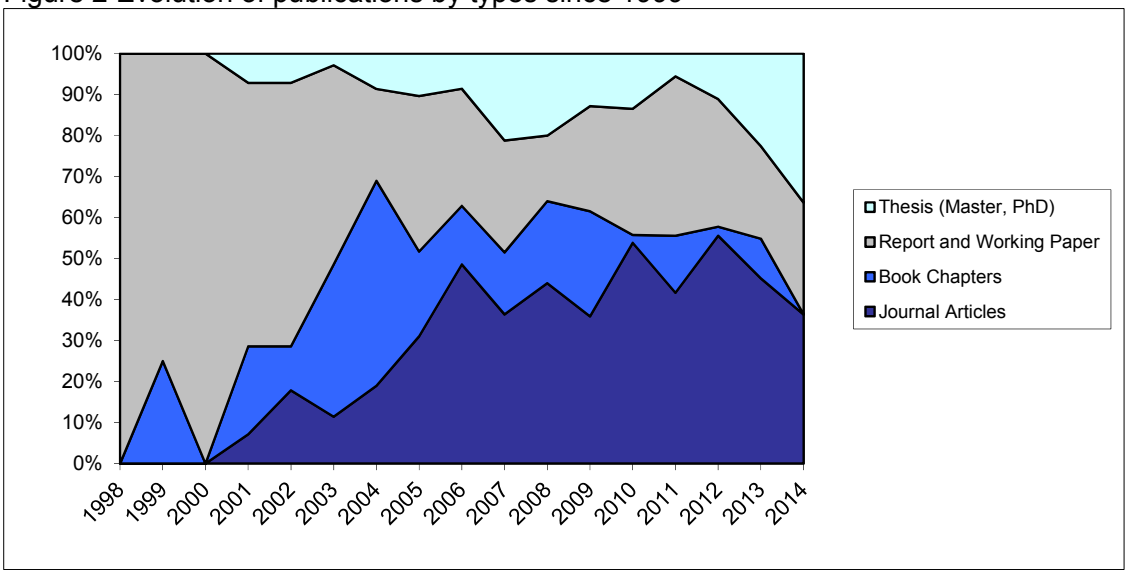
remains poor despite policy measures for support? What are the complex relationships between poverty, social isolation and externally induced social exclusion?

- *Gender, social and economic participation*: How do life-trajectories diverge according to gender? Why do professional careers of men and women with similar educational resources still diverge?
- *Social determinants of health*: How is the life course of individuals and families of widely different origins and facing different social conditions related to health behaviour and outcomes? What are the consequences of worsening living conditions on health? What impact does ill health have on living conditions, employment and quality of life later in time?
- *Emotional trait stability over time*: How do changes in living conditions and/or health affect negative (anxiety, irritation, depressions) and positive emotional states (joy, hope, optimism)? Does a negative emotional state cause illness and low life satisfaction?

Evidence based answers to these and other questions are highly valuable for the formulation and implementation of new policies, since they facilitate evidence-based political decision-making. The release of each consecutive wave of SHP data and the synergies between researchers working with the data, make the SHP data increasingly rich, leading to a steadily increasing number of scientific publications.

All SHP data users are contractually required to report back any publication based on the SHP data, be it journal articles, books, working papers, etc., but also unpublished work such as diploma or doctoral theses, or seminar work. Figure 2 shows the evolution of the number of publications by type since 1999.

Figure 2 Evolution of publications by types since 1999



## 1.4 SHP and CNEF

Since 2008 the SHP participates in the Cross-National Equivalent File (CNEF). The CNEF contains equivalently defined variables for the American Panel Study of Income Dynamics (PSID), the German Socio-Economic Panel (GSOEP), the British Household Panel Study (BHPS), the Household Income and Labour Dynamics in Australia (HILDA), the Canadian Survey of Labour and Income Dynamics (SLID), the Korea Labor and Income Panel Study (KLIPS), the Swiss Household Panel (SHP), and the Russia Longitudinal Monitoring Survey (RLMS). The data are designed to allow cross-national researchers access to harmonized versions of these panels.[2] For acquiring the data, see

http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/cnef-2/

## 1.5 Access to the data and data protection rules

The SHP data are available at no charge. Users must sign a contract available on the SHP website:

http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/data-contract-2/

Once the contract is signed, users will have access to the most recent SHP data.

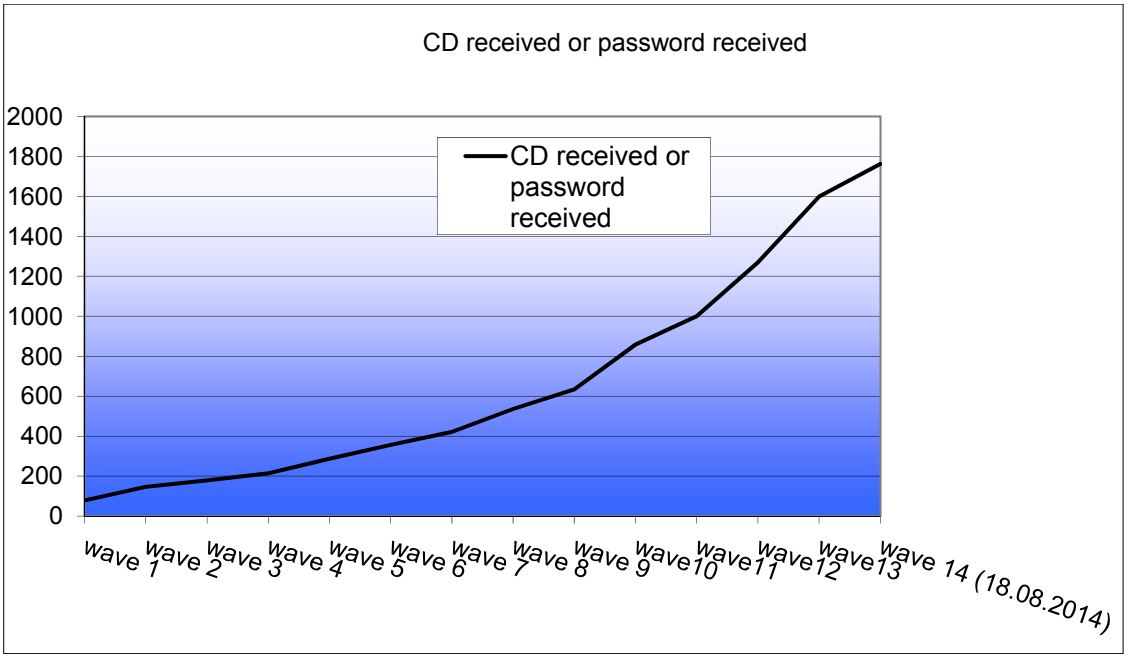
The SHP data are available to researchers signing in person the data contract at no charge and exclusively for non-commercial use. It is strictly forbidden to attempt to identify particular households or individuals and to make parts or all of the data available to a third party. In a research team, all users are to sign the contract individually. SHP data users commit themselves to sending a copy of all working papers, final reports or publications to the SHP (swisspanel@fors.unil.ch).

## 1.6 Research network Living in Switzerland

In September 2014 the research network "Living in Switzerland" had some 1762 registered members, which represents an increase of 25% since June 2013. So far, 59 special contracts for CNEF data have been signed with the SHP. Figure 3 shows the continuous increase of SHP data users since the first wave.

**Figure 3 Number of users who ever received a SHP CD or password (Final version SHP-Data)**

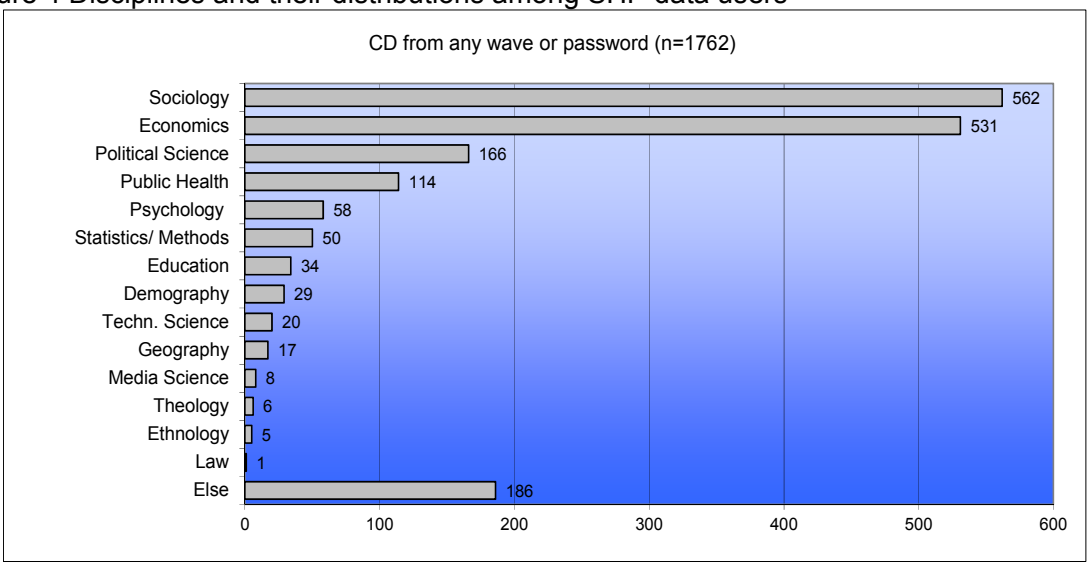
[2] For more information, see http://cnef.ehe.osu.edu/ or Frick et al. (2007).




Among the SHP data users, sociology (32%) and economics (30%) are by far the most prevalent disciplines, followed by political science (9%), public health (6%), psychology (3%), statistics (3%), and education (2%). A few scientists from technical sciences, geography, theology and media science are also present, indicating that spatially related topics are also being analysed using the SHP data.

The data users belong to the following institutions: Swiss academic institutions (73%), international academic institutions (18%), public administrations (5%), and private institutes (4%). Academic communities clearly dominate, but the “statistical” use by public administrations and private research facilities is certainly not negligible. Nowadays almost 20% of the researchers come from abroad. Within Switzerland, all universities and many universities of applied science (Fachhochschule/HES) are represented among the data users.

Figure 4 Disciplines and their distributions among SHP data users




## *1.7 Getting more information*

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# CHAPTER 2 STUDY DESIGN

## 2.1 General design of the SHP

Since its origin in 1999, the SHP survey "Living in Switzerland" has covered a broad range of topics and approaches in the area of social sciences. The survey is conducted annually from September to February by M.I.S. Trend in Lausanne and Bern using the computer assisted telephone interview technique (CATI). Since 2010CAPI and CAWI are used for refusal conversion.

The SHP is a panel, i.e. the same persons and households are interviewed annually and answer, with a few exceptions, the same questions. In contrast to a rotating panel it is an indefinite life (simple) panel. There are, therefore, no continuous refreshments of the sample. At present, the SHP comprises three samples drawn by the Swiss Federal Statistical Office: the SHP_I (the sample of households and individuals selected in 1999 and interviewed for the first time that year), the SHP_II (interviewed for the first time in 2004) and the SHP_III (interviewed for the first time in 2013).

Information is collected at the household and the individual level. The SHP uses three types of questionnaires: a household grid questionnaire to assess the household composition (lasting less than 10 minutes), a household questionnaire (lasting 15 minutes on average) and an individual questionnaire. All individuals aged 14 or more (living in the household) are eligible to answer the individual questionnaire (lasting around 35 minutes). The individual questionnaire of the reference person includes in addition a proxy questionnaire on household members younger than 14 years, household members who are absent for a longer period, or who are unable to respond themselves due to illness or disability.

## 2.2 Sample structure

The SHP consists currently of three different samples: SHP_I was drawn in 1999, SHP_II in 2004 and SHP_III in 2013. Because of the temporal differences, there are also some distinctions in the respective sampling frames and the sampling designs.

### *2.2.1 Sampling frame*

The first sample (SHP_I) is a stratified random sample of private households whose members represent the non-institutional resident population in Switzerland. In 1999, the methodology section of the Swiss Federal Statistical Office drew a simple random sample in each of the seven major statistical regions of Switzerland, on the basis of the Swiss telephone directory (SRH – Stichprobenregister für Haushalterhebungen, or sample frame for household surveys). This sample of households was representative of the various social groups in all regions of Switzerland. In order to compensate for the erosion of the original 1999 sample (deaths, hospitalisation, migration, refusals), a refreshment random sample of households was injected in 2004 (SHP_II) following the same

methodology. The sampling frame was CASTEM (Cadre de Sondage pour le Tirage d'Echantillons de Ménages), the follow-up register of SRH, which is owned by the Swiss Federal Statistical Office and also represents a telephone directory. A second refreshment sample was injected in 2013 (SHP_III). This sample was drawn from the SRPH (Stichprobenrahmen für die Personen- und Haushaltserhebungen), which consists of data coming from the cantonal and communal register of residents and which is owned by the Swiss Federal Statistical Office. As this sampling frame is on an individual basis, the selection units of the SHP_III were individuals rather than households, as was the case for the SHP_I and SHP_II.

*2.2.2 Sampling designs*

The samples of SHP_I, SHP_II and SHP_III are stratified by major geographic region (NUTS II), in proportion to the number of households (or individuals in the case of the SHP_III) per stratum, see Graf (2009). This means that for the SHP_I and the SHP_II the selection was proportional to the number of households per major region without overrepresentation of smaller regions. For the SHP_III, the number of addresses was proportional to the number of individuals per major region. In both cases the selection did not take into account the average number of persons in households per region. Within one major region, each household or individual had the same inclusion probability, independent of the size of the household.

The addresses of the gross sample are distributed according to the following proportions (SHP_I: census 1990; SHP_II: 2000 census; SHP_III: STATPOP 2012):

Table 2.1 Stratification of gross sample

| Strata | Cantons[a] | Proportion of addresses SHP_I (%) | Proportion of addresses SHP_II (%) | Proportion of addresses SHP_III (%) |
|---|---|---|---|---|
| Lake Geneva region | VD, VS, GE | 18.45 | 18.22 | 18.90 |
| Mittelland | BE, FR, SO, NE, JU | 23.25 | 22.92 | 22.25 |
| North-west Switzerland | BS, BL, AG | 13.44 | 13.86 | 13.57 |
| Zurich | ZH | 17.51 | 18.22 | 17.52 |
| Eastern Switzerland | GL, SH, AR, AI, SG, GR, TG | 15.68 | 13.70 | 13.98 |
| Central Switzerland | LU, UR, SZ, OW, NW, ZG | 7.20 | 8.75 | 9.53 |
| Ticino | TI | 4.47 | 4.33 | 4.25 |
| Total | | 100 | 100 | 100 |

[a]) See Appendix A for a list of cantons and their abbreviations

The size of the strata at the moment of the selection for SHP_I,SHP_II and SHP_III were as follows:

Table 2.2 Sizes of strata at the moment of selection (number of households for SHP_I and SHP_II and numbers of individuals for SHP_III)

| Strata | Cantons[a] | SHP_I (N): households | SHP_II (N): households | SHP_III (N): Individuals |
|---|---|---|---|---|
| Lake Geneva region | VD, VS, GE | 714'725 | 648'590 | 1'519'189 |
| Mittelland | BE, FR, SO, NE, JU | 837'452 | 784'266 | 1'788'791 |
| North-west Switzerland | BS, BL, AG | 484'667 | 455'833 | 1'091'302 |
| Zurich | ZH | 646'469 | 587'850 | 1'408'575 |
| Eastern Switzerland | GL, SH, AR, AI, SG, GR, TG | 531'731 | 493'606 | 1'123'672 |
| Central Switzerland | LU, UR, SZ, OW, NW, ZG | 313'548 | 306'605 | 765'879 |
| Ticino | TI | 180'623 | 160'123 | 341'652 |
| Total | | 3'709'215 | 3'436'873 | 8'039'060 |

*2.2.3 Coverage*

Because of the different sampling frames, the population of reference differs slightly according to the sample. For the SHP_I and the SHP_II, the population of reference consists of all individuals living in private households in Switzerland who had a telephone connection registered in the telephone directory (landline or mobile). In case of the SHP_III, the sampling frame includes all individuals living in private households in Switzerland, independent of the availability of a telephone connection.
For all three samples individuals living in old peoples' homes, institutions, collective households or prison, are not part of the population of reference.

An estimated 98.5% of private households had a telephone connection at the time of the selection of the sample for the SHP_II in 2004. The SRH covered about 93% of these households. In 1999, at the time of the selection of the sample for the SHP_I, the SRH's coverage rate was about 95%.

The sampling frame SRH and CASTEM are subject to the following errors:

- *undercoverage*: some households were not listed in the directory at the time of selection. This includes households with unlisted numbers and households that could not be contacted by telephone. This problem may produce a bias (differences in the estimates based on the actually observed population (SHP survey) compared to those that would have been observed based on the target population, see Lipps and Kissau (2012)).

- *duplicates:* despite meticulous checking of the SRH to ensure that only one number is kept per household, some households appear more than once in the survey frame. This problem results in incorrect initial selection probabilities. As the effect is negligible, no correction factor was calculated for households with several telephone lines.

- *overcoverage*: selection of units outside the target population (businesses, homes, prisons, collective households, second homes ….). It should be noted that for a panel, this problem is only encountered at wave 1 and that these addresses are usually considered as out of sample (non-sample cases).

The SRPH is updated every three months by the communities and cantons. The entries are thus not based on the entry of a phone directory, but on the register in the municipality or the canton. Although undercoverage or overcoverage can still occur, they are negligible.

## *2.3 Following rules*

*2.3.1 Initial follow-up rules for households*
The general rule is to interview all households that completed at least the grid during the previous wave. We proceed with interviews as long as members (of these households) agree to fill in the household questionnaire and at least one individual questionnaire (it is always possible to catch up with the other individuals in a future wave). However:

1. We permanently drop from the study households that were not contacted at all during the 1st wave or those that did not supply any information at the time of the 1st wave (not even a grid) or those who only completed a non-response questionnaire for wave 1.

2. For SHP_I we also permanently dropped all households that only replied to the grid at wave 1. For SHP_II, we changed this rule and only dropped households that had completed just a grid for wave 1 and wave 2.

3. We dropped households that gave a "final refusal" (households where no one is willing to respond to a household interview even after refusal conversion attempts), those who move away from Switzerland and those who are fully and permanently institutionalized.

SHP_III will adopt the same following rules in future waves. A household will be recontacted if it completed at least the grid questionnaire in the year before.

*2.3.2 Initial follow-up rules for individuals*
4. The SHP initially only followed respondents (OSM = Original Sample Member) and their children, whereas cohabitants were only (re-)interviewed as long as they lived with an OSM. Since 2007 also cohabitants are followed.

5. The minimum age of eligibility is 14 years.

6. As a general rule, respondents (OSM) are followed until they die or are permanently institutionalized (or leave the target population for another reason).

7. Individuals who send us a written refusal are dropped from the sample.

*2.3.3 Measures against attrition*
The following measures were taken to reduce attrition from 2006 to 2009 (waves 8 to 11 of SHP_I and waves 3 to 6 of SHP_II):
- recontacting all SHP_I households that had refused to participate between 2000 and 2003, that is at waves 2, 3, 4 and 5[3];

[3] Out of the 1,520 “asked again” SHP_I households in 2006 and 2007, 580 completed at least the grid interview.

- recontacting past “final refusal” households that participated again after being re-contacted in 2006 and 2007;
- recontacting refusing SHP_I households in 2006, 2007, 2008 and 2009 (waves 8 to 11);
- recontacting refusing SHP_II households in 2005, 2006, 2007, 2008 and 2009 (waves 2 to 6 of SHP_II);
- follow-up of non-original sample members.

After wave 11 (2009), virtually all past “final refusals” had been recontacted (and often interviewed). Since then, considering that we had somehow reconstituted some kind of “original sample”, we define five categories of “household level responses” for a given wave (wave t): “full response” (grid, household, at least one individual questionnaire), “household level response” (grid and household questionnaires), “grid level response” (grid questionnaire only), “non-contacted households” (blocked addresses), and “full nonresponse”. On this basis, the follow-up rules are (wave t+1): we contact all “full response”; we contact all “household level response”, “grid level response”, and “non-contacted households” (but with a procedure of refusal conversion); we do not contact “full nonresponse”. This system is being extended from year to year. These rules will also apply to SHP_III.

## *2.4 Questionnaires*

*2.4.1 Content of the questionnaires*

The Living in Switzerland survey is a comprehensive survey. The questionnaires (household and individual) cover a broad range of social fields and topics. They are also designed to collect both „objective” (resources, social position, participation, etc.) and „subjective” data (satisfaction, values, evaluation, etc.). The whole constitutes an operationalisation of the different elements of the microsocial level: living conditions, life events, attitudes and perceptions, and lifestyles/ways of life (Budowski et al., 1998).

The questionnaire at *the household level* (SHP_I, SHP_II and SHP_III) covers the following areas:

1. *composition of the household:* containing basic information collected in the grid questionnaire about all the members of the household, such as age, sex, relations between the members of the household, nationality, level of education and occupational status;

2. *accommodation:* containing „objective” elements, such as the type and size of the accommodation, home ownership or tenancy, the cost of and/or the subsidies received for housing, as well as „subjective” elements, such as satisfaction with the accommodation, evaluation of the state of the accommodation and assessment of perceived nuisances;

3. *standard of living*: referring to a list of goods owned by the household or activities that its members can carry out, together with the reason (financial or otherwise) why goods are not owned or activities not carried out;

4. *the household’s financial situation*: containing „objective” information such as the existence of financial difficulties (and the household’s reactions to different situations), in-

debtedness and the reasons for it, the total household income, the amount of tax paid, and the social and private transfers, as well as „subjective" elements, such as satisfaction, an estimate of the minimum income the household considers necessary or an evaluation of how the household's financial situation has evolved;

5. *the household and the family*: collecting information on any external help available to the household for housework or child-care, the sharing of tasks, and decision-making within the household.

The *individual questionnaires* cover the following topics[4]:

1. *the household and the family:* comprising „objective" elements, such as the existence of children living outside the household, the sharing of housework and childcare, as well as „subjective" elements, such as satisfaction with private life and with the share of the housework;

2. *health and „victimisation":* covering „objective" elements, such as general illness and health problems, visits to the doctor and hospitalisation, long-term handicaps, threats or attacks endured, together with „subjective" elements such as the self-perceived state of health, the estimated evolution of the state of health, or satisfaction with one's own health;

3. *social origins (asked at first interview only):* referring to information related to profession, professional position, educational level, political positioning, and the nationality of both parents together with possible financial difficulties in the family of origin;

4. *education:* covering the various levels of achieved education, education currently being pursued, fluency in foreign languages, and participation in on-the-job training;

5. *employment:* considering different aspects: information necessary to determine the status of the interviewee in the labour market, the current main employment, details about the last main job held. These modules also comprise „objective" elements, such as profession, status of the profession, the number of hours worked, work schedule, atypical work, as well as „subjective" elements such as satisfaction with various aspects of the job, the evaluation of promotion prospects or of personal qualifications;

6. *income:* including „objective" elements such as total personal income, total professional income, received social transfers, received private transfers, and other income, and „subjective" elements, such as satisfaction with the financial situation and an evaluation of changes concerning the personal financial situation;

7. *participation, integration, networks:* taking into account „objective" elements, such as frequency of social contacts, non-remunerated work outside home, participation in associations, membership of and participation in religious groups, and „subjective" elements

[4] Please note that the first wave of the SHP_III did not include an individual questionnaire. The first time an individual questionnaire will be administered will be in Wave 2. In Wave 1 in addition to the grid and household questionnaire, respondents completed a biographical questionnaire (see 2.4.7 The biographical questionnaire (SHP_III Wave 1)).

such as the assessment of social capital by means of evaluation of potential practical help and emotional support (from various social networks);

8. *politics and values:* referring to „objective" elements such as political participation, membership, party identification, political positioning; and „subjective" elements such as satisfaction with the political system, the evaluation of issues or even political values; and finally

9. *leisure and media:* comprising „objective" elements, such as leisure activities and the use of the media as well as „subjective" elements, such as satisfaction with leisure and free time.

10. *psychological scales*: in 2009 six items were added measuring two dimensions of self-perception (self-mastery and self-esteem) as well as the Big Five personality traits measured by means of a 10-item short scale (see also section 6.4).

Since the second wave the questionnaire also includes a „life events" module and an „occupational calendar" module (covering the 12 months prior to the interview).

More information on the content of the questionnaires is available here:
http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/questionnaires/
And here (as pdf):
http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/questionnaires-pdf/

*2.4.2 Modular design*

In 2009, the SHP introduced a new system of modularization of the individual questionnaire similar to other panels such as the GSOEP, BHPS and HILDA. The SHP now contains three different types of questions: (1) questions asked only once (usually in the first interview), (2) questions asked each wave and (3) questions asked regularly, but not each year. The latter are arranged in different modules, i.e. "social network", "political behaviour and values", "social participation", "psychological scales", "religion" and "leisure and culture". For 2013, the module "social network" was evaluated and revised. Hence this "new" module is available for wave 15 (see also 2.4.3). The rotation calendar is the following:

Tab. 2.3: Rotation calendar of the SHP modules from 2010 to 2020

| Module | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Social network | X | | | X | | | X | | | X | |
| Religion | | | X | | | X | | | X | | |
| Social participation | | X | | | X | | | X | | | X |
| Political behaviour and values | | X | | | X | | | X | | | X |
| Leisure and culture | X | | | X | | | X | | | X | |
| Psychological scales | | | X | | | X | | | X | | |

X = Administration of the module

*2.4.3. Revised modules and new variables in Wave 15*

**New variables in the household questionnaire**: In wave 15 the survey included new questions concerning renovation of the respondent's accommodation. These questions mainly focus on the type of renovation that has been done and its costs (financial burden for the household). Additionally, the questions on deprivation (a list of things the household can afford) have been updated.

**New "sports" module in the individual questionnaire**: A new sports module has been developed in collaboration with the Swiss Institute for Empirical Economics Research (SEW-HSG). It focuses on the types of sports the respondent does regularly, the frequency and duration and location of exercise. Furthermore, respondents are asked with whom they are doing sports and whether they participate in competitions. At the first administration of the new sports module, the respondents were questioned on their sports habits at the age of 12.

**Revised social networks module in the individual questionnaire**: The revised module includes in addition to existing questions on social networks: additional information on (non-resident) family members (partner, children, parents, siblings), provision of informal support, loneliness, and online social networks.

*2.4.4. Recently revised modules and new constructed variables*

**Module "religion"**: The revised module contains in addition to questions of the original module, new questions on attitudes toward religions, religious socialization, and two ("centrality", "spirituality") scales (see Lebert and Tillmann 2011).

**Module "psychological scales"**: This module is dedicated to topics such as life satisfaction, self-mastery, worry domains, and life goals (see Ryser, Lebert andTillmann 2012).

**Module "social participation"**: Besides participation in various associations and groups, the revised module contains new topics such as behaviour regarding donations, and a measure of self-interest taken from the Morally Debatable Behaviour Scale (Halpern 2001).

**Module "political behaviour and values"**: In addition to questions of the former module, this module contains new information on opinions about public expenditures, party identification and sympathy, environmental protection, and subjective class consciousness.

**Module "leisure and culture"**: The revised module contains updated questions on leisure activities and new variables for television and internet use. Furthermore, a series of new questions on holidays is asked.

**Tobacco consumption**: At regular intervals we ask questions on smoking and quitting behaviours. At the first administration in wave 12, questions on former smoking behaviour were asked.

**New variable Original Sample Member (OSM):** The variable Original Sample Member (OSM) indicates whether a respondent was present in the sample at the first wave (1999 for the SHP_I sample and 2004 for the SHP_II sample). People who join the panel after the first wave are so-called "cohabitants". We have produced a variable "OSM" with

three categories: OSM, child of OSM and cohabitant. This variable might help to do analyses by subgroups and to help to understand why some individuals have a longitudinal weight while others do not, as only OSM receive a longitudinal weight.

**New variables nationality by world regions (REG_1 _$$ / REG_2_$$ / REG_3_$$):** These variables represent a grouping of the variables concerning nationality by world regions. The definition of the categories has been done on the basis of the nomenclature of the Federal statistical office. The variables have the following categories: Switzerland, Northern Europe, Eastern Europe, Central Europe, Western Europe, South-West Europe, Southern Europe, South-East Europe, Africa, Northern America, Latin America, Asia, Oceania and Antarctica.

**New variable participation status (RNPX$$):** Currently, there are various sources of information concerning the participation status of an individual or a household. The new variable RNPX$$ offer a summary of the already available variables concerning participation status and consider furthermore comments coming from the interviewers that are not available to the users. This new variable allows researchers distinguish between non-contact, refusal, or non-response due to death, institutionalisation, emigration, family related difficulties, language problems or age or health problems or because the individual left the household (temporarily or permanently).

**New variable on children (ownkid$$):** Until recently, the SHP only provided variables containing the information of the number of children living in the same household. A frequently recurring question from SHP data users was, however, how many children an individual has or has had in total. Therefore, we constructed a variable measuring the total number of own (biological and adopted) children per person. This information is useful in research on fertility or the transition to parenthood and is also frequently used as a control variable.

### *2.4.5 Forthcoming new variables*

Wave 16 will include several new variables in the employment and income module as well as an update on the children's schooling in the proxy questionnaire.

### *2.4.6 The use of 11-point scales*[5]

For many questions of the Swiss Household Panel questionnaire, the 11-point scale has been chosen instead of a category scale. The 11-point scale is used in many other ongoing surveys, for example the GSOEP and World Value Study, and seems to be well handled by respondents. Respondents are asked to indicate the strength of their attitude or opinion in a number between 0 and 10, with the endpoints 0 and 10 being defined by verbal labels. This type of scale is often called a "number production scale".

The main arguments in favour of this type of scale are:

*1. Minimisation of categorisation effects*

[5] This section is a summary. See www.swisspanel.ch under Documentation for the complete version.

We assume that attitudes fall along a single, latent continuum, ranging from positive to negative. The larger the number of points on a response scale, the better it represents this underlying, latent continuum and the more accurate it reflects the variation. Scales with relatively few response alternatives force respondents to categorise their reaction towards an attitude object instead of directly mapping it onto the response continuum, thus causing information loss. Early research has already shown that respondents differentiate more between objects when offered response scales with greater numbers of categories (Bendig 1954, Garner 1960). The larger the number of points, the more powerful the scale is in discriminating, but at a certain point respondents become unable to make fine distinctions and thus round off.

*2. Improvement of data analysis*
Improving the measurement procedures is one way to improve the quality of data analysis. In their investigation of the possibilities to optimise measurement procedures in social science, Van Doorn, Saris, and Lodge (1983) did not simply enlarge the number of scale points, but used psychophysical scaling (see also Lodge 1981). Respondents expressed their answers on continuous scales by drawing lines or assigning numbers to their opinions, thus creating interval level measures. The best alternative to category scales within the class of magnitude estimation scales that can be used in CATI is the number production scales.

It is essential that a magnitude estimation scale has fixed anchors, or reference points. The 11 point number scale used in the panel questionnaire has, for example, two reference points, 0 and 10. These reference points have been given labels that clearly indicate the end point of the scale, for example: 'completely satisfied' and not, for example: 'very satisfied'. Scales with two or more reference points and clear labels that fix the end points have proven to decrease the measurement error that can result from variation in response functions (Saris and De Rooij 1988).

*3. Reliability of the data (less measurement error)*
Another argument is the effect of measurement error, or the reliability of the data. Scales with more response alternatives will be more reliable than those with fewer. It is often stated that the reliability of scales increases with the number of points used. There is probably a limit to the benefit of adding response categories or scale points. An international study of satisfaction, across 10 different countries, showed that the 11-point scale was the most valid and reliable scale of all scales included in the study (Scherpenzeel and Saris 1995).

In addition, the reasons why this type of scale is especially suitable for CATI are:

*4. Time saving*
The number production scales do not consist of lists of alternatives that all have to be read aloud in a telephone interview. Instead, *only* the first and end point are read aloud and respondents are asked to produce a response alternative themselves. This takes considerably less time than reading lists of fully labelled categories.

*5. No response-order biases*
Response alternatives presented at the beginning and end of a list may be more likely to be recalled and therefore perhaps selected more often. When no visual aids are presented and when the list is long, memory effects may be important (Schuman and Presser 1981).

The number production scales do not consist of lists of alternatives. Instead, *only* the first and end point are read aloud and respondents are asked to produce a response alternative themselves. Since CATI is exclusively oral, verbal category scales are likely to suffer from the response-order biases. Therefore, number production scales are more appropriate in CATI.

### *2.4.7 The biographical questionnaire (SHP_III Wave 1)*

The questionnaires used in the first wave of the SHP_III differed from the SHP_I and SHP_II. The aim of the first wave of the SHP_III was to collect retrospective individual biographical data. For this purpose respondents in the SHP_III sample completed, in addition to the regular grid and household questionnaire, a life calendar. The SHP_III life calendar is presented as a two way grid with the temporal dimension in years in rows, and various domains of life in columns. Respondents were asked to report events for each domain of life in this grid. This questionnaire has been developed in collaboration with the NCCR LIVES.

The grid provides a visual structure which enhances several aspects of memory retrieving (Caspi et al., 1996). The SHP_III participants can visualize their life trajectories in all domains and can therefore link the occurrence and duration of events in different domains. Interrelatedness facilitates recall for distinct events, because interrelated themes reflect the individual autobiographical memory (Belli, 1998; Belli, Lee, Stafford, & Van Hees, 2002). The visual structure also helps to detect gaps and inconsistencies. Overall this method produces high quality retrospective data (Freedman, Thornton, Camburn, Alwin, & Yound-De Marco, 1988).

The life calendar covers the following domains of life:
1. *residential trajectory*: information on residential mobility.
2. *residence permit*: information on the different residence permits of non-Swiss respondents.
3. *living arrangements*: information on with whom the respondent lived during the life course.
4. partner *relationships*: information on partner relationships and changes in civil status.
5. *family events*: information on the occurrence and timing of family related events such as birth or death of a child, separation or divorce of the parents, death of a member of the family.
6. *professional activities*: information on professional activities and periods during which the respondent received social benefits.
7. *health*: information on the occurrence and duration of different health problems.

See for more information on the SHPIII files 6.1.6a.

# CHAPTER 3 FIELDWORK SHP_I/SHP_II

Starting with the selection and training of the interviewers this chapter describes the whole fieldwork process from how the participating households are approached to the measures taken to increase response and quality control.
Since the beginning in 1999, the fieldwork for the Swiss Household Panel (SHP) is done by M.I.S. Trend in Lausanne and Bern (www.mistrend.ch), by conducting computer-assisted telephone interviews (CATI) in German, French and Italian.

## *3.1. Approaching the participating households*

The fieldwork is scheduled from September to February and starts with sending a letter to the participating households informing them of the upcoming interviews. To make sure that the first personal contact by an interviewer follows shortly after the initial mail (approximately one week later), the letters are sent in three mailings with an interim of one week. Enclosed with the preliminary mail, participants receive a newsletter containing some results of recent analyses of the SHP data as well as an unconditional incentive (for further information see 3.3.4.).

Households that did not respond since at least one wave are contacted at a later point in time, also divided in three groups. They are treated like households refusing in the current wave as part of the refusal conversion procedure (see also 3.3.3).

## *3.2 Selection and training of interviewers and supervisors*

To guarantee a smooth functioning of the fieldwork, M.I.S. Trend employs a large group of interviewers plus specially trained supervisors. Before the start of the fieldwork interviewers and supervisors participate in a training consisting of two sessions.

The supervisors' training aims to prepare the supervisors for their roles as contact persons, organizers of the interviews and supervisors of the interviewers. The supervisors – who are experienced interviewers themselves – are responsible for the performance of the interviewers.

The aim of the interviewers' training is to become familiar with the SHP in general, with its longitudinal design and the specific difficulties. Complex items are discussed and the interviewers learn how to convince respondents to participate at the survey. They work through the questionnaires and study the training manual as well as the advance letters and newsletters that the participating households received.

The training sessions are conducted by M.I.S. Trend in Lausanne and Bern, assisted by the supervisors and a member of the SHP-Team.

For the refusal conversion, M.I.S. Trend uses only the most successful interviewers – measured by their individual response rates and the quality of their interviewing performance. They receive extra training to be well prepared.

M.I.S. Trend ensures a strict selection of only the most experienced interviewers and guarantees that all interviews are conducted by native speakers.

## *3.3 Measures to increase response*

Over the past years, the SHP has taken several measures to fight attrition. These measures concern: incentives for the interviewers, incentives for the participating households, refusal conversion, maintaining contact with the households and minimizing noncontact.

### *3.3.1 Incentives for the interviewers*

To increase the interviewers' motivation they can earn two collective bonuses. One bonus is based on the general response rate: all interviewers together have to accomplish at least 95% of last year's individual interviews. The second bonus is only oriented towards interviewers who are engaged in refusal calls and is based on the refusal conversion rate. Additionally, there are regular briefings of all interviewers and supervisors on the progression of the fieldwork.

### *3.3.2 Incentives for the participating households*

To enhance survey participation an *unconditional* incentive is offered to each eligible respondent. In wave 12 we introduced an unconditional incentive, sent to the households with the preliminary letter asking them to participate in the new wave.

Between wave 12 and wave 14, an additional incentive was offered to *complete households*. A household is called "complete" if all members of the household of 14 years or older completed the individual interview and if the household reference person completed the grid and the household questionnaire. This additional incentive was only offered to household consisting of at least two members. For budgetary reasons this additional incentive was dropped in wave 15.

The general unconditional incentive is sent to the respondents with the preliminary letter asking the household to participate in the new wave of the SHP. The additional incentive for complete households was given to the participants at the end of the fieldwork.

### *3.3.3 Refusal conversion*

Households that have not participated in the survey for at least one year have been reapproached progressively. These households are sent a preliminary letter with the request to take part in the next wave of data collection. Only the most successful and specially trained interviewers are selected to contact these households. Also households and individuals who refuse participation in the current wave are re-contacted at a later point by refusal conversion trained interviewers.

The refusal conversion rate, calculated as the percentage of completed individual interviews of all eligible individuals who refused previously, amounts to about 45% (Lipps, 2011).

*3.3.4 Contacting respondents*

To avoid household drop out of the panel because of unsuccessful tracing (due to moving, changed phone numbers, household splits, etc.), several measures ensure that contact can be re-established with the respondents in later waves.

First, the participating households are informed annually by means of a newsletter enclosed with the advance letter at the start of each fieldwork phase.
In 2009, the SHP started the use of tailored leaflets designed for specific groups of households: families with children, couples without children, people living alone, and people of 65 years and older. The leaflets treat topics that inform targeted households about study results that are of interest to them.

The newsletters can be viewed here:
http://forscenter.ch/en/our-surveys/swiss-household-panel/information-for-participating-households/newsletters-study-living-switzerland/

Second, respondents are asked to leave their mobile number and/or their e-mail address. If respondents are not willing to give this information or do not have a mobile number or e-mail address, they are asked to leave the address of an auxiliary (e.g. a family member living outside of the household or a close friend) who can help in case of losing track of the respondent.

Third, households are called on different days of the week and on different times during the day in order to minimize noncontact. And fourth, a bilingual interviewer responsible for administration and tracking of the addresses is briefed on how to find relocated respondents. The following measures are taken by this interviewer in case the advance letter is returned to sender:

- Checking whether phone number is still valid
- Contacting mobile phone, e-mail address or auxiliary
- Searching directories and the local inhabitant register
- Request the dcl data care (a service of the Swiss post mandated to seek currently valid household addresses and the corresponding phone numbers)
- If no phone number can be found, a form is sent to the address provided by the dcl data care asking to complete contact details.

## *3.4 Quality control*

Prior to each wave, extensive pre-tests are carried out, checking correct technical functioning of filters and new items and running different scenarios. After the training of supervisors and interviewers (for more details see 3.2), the fieldwork agency monitors the interviewer performance during the fieldwork: supervisors listen in to the interviews, evaluate interviewers on several criteria (e.g. accurateness and pace of reading, argumentation), document performance and give feedback to the interviewers. M.I.S. Trend carries out the training and monitoring of interviewers in collaboration with the SHP-Team.

# CHAPTER 4 FIELDWORK SHP_III LIFE CALENDAR (WAVE 1)

As for the SHP_I and the SHP_II, the fieldwork for the third sample of the SHP is done by M.I.S. Trend in Lausanne and Bern (www.mistrend.ch). The first wave of the SHP_III took place from September 2013 to March 2014. It consisted of a paper and pencil biographical questionnaire in addition to the grid and the household questionnaires done by CATI or CAPI.

## *4.1. Approaching the participating households*

Fieldwork for the SHP_III took place in parallel with the SHP_I and SHP_II and started with sending a letter and an informative flyer to the participating households informing them about the upcoming interviews. For the biographical questionnaire in the first wave of the SHP_III only participants aged 16 or older were eligible. They received an unconditional 10.- CHF incentive. Two different approaches were used: one for households for which address and telephone number were available and one for households for which only an address was known.

*4.1.1 Procedure for the households with a known address and telephone number*

When a telephone number was known, households were contacted by phone to complete the grid and household questionnaires (CATI). Two to four days after this initial interview, biographical questionnaires, an instruction manual and a return envelope were sent to all eligible participants. Participants who did not return the biographical questionnaire within two weeks received a reminder. Participants who still did not respond within the two weeks following this first reminder were re-contacted by a special face to face team. This team provided help with the completion of the biographical questionnaire if needed.

*4.1.2 Procedure for households of which only an address was known*

If no telephone number was available, interviewers went to the households to complete the grid and household questionnaire face-to-face (CAPI). If possible, the respondents also completed the biographical questionnaire at this time. Otherwise, the biographical questionnaire, a manual and a return envelope were left with the respondent who could complete the questionnaire at a later time. The follow up of nonrespondents was the same as for the households under 4.1.1.

## *4.2 Selection and training of interviewers and supervisors*

Before the start of the fieldwork interviewers and supervisors followed a training, either a three hour training for CATI interviews, or a one day training for CAPI interviews.

As for the SHP_I and the SHP_II, the supervisors' training prepared the supervisors for their roles as contact persons, organizers of the interviews and supervisors of the interviewers.

The aim of the interviewers' training was to become familiar with the SHP_III in general, its longitudinal design and the specific difficulties of the biographical questionnaire. Interviewers learned how to convince respondents to take part in the survey; they worked through the grid, household and biographical questionnaires and studied the training manuals. Interviewers were also asked to complete their own biographical questionnaire to fully understand the objectives of the questionnaire and to become familiar with the difficulties that may arise.

The training sessions were conducted by M.I.S. Trend in Lausanne and Bern, with the assistance of the supervisors and a member of the SHP-Team.

Like in the SHP_I and SHP_II, for refusal conversion in the SHP_III M.I.S. Trend uses only the most successful interviewers who received extra training.

## *4.3 Measures to increase response*

The procedure is quite similar to the two existing samples of the SHP. To encourage participation, participants received an unconditional incentive. Interviewers were trained to convince sample members to participate in the study.

### *4.3.1 Incentives for the interviewers*

M.I.S. Trend introduced different procedures and collective incentives to increase the interviewers' performance.

### *4.3.3 Refusal conversion*

The procedure for the SHP_III is similar to the one for the SHP_I and the SHP_II. Households that refused to participate in the survey have been re-approached by refusal conversion trained interviewers.

### *4.3.4 Contacting respondents for the future*

For all three samples, to avoid household drop out because of unsuccessful tracing (due to moving, changed phone numbers, household splits, etc.), several measures ensure that contact can be established with the respondents in future waves. These measure are presented in detail in 3.3.4 .

## *4.4 Quality control*

Measures of quality control are the same as for the SHP_I and SHP_II (see 3.4 Quality control)

# CHAPTER 5. DATA QUALITY

## *5.1. Response rates and attrition*

*5.1.1 Response rates*

Tables 5.1 to 5.3 indicate the number of interviewed households and persons for the years 1999-2013 in the three SHP samples. See Appendix A for further detail on response figures.

*SHP_I*

For the SHP_I (waves 1 to 15), 5,074 households were first interviewed in 1999. In the fifteenth wave, 2,881 households and 4,880 persons responded (Tables 5.1 and 5.2). Out of the 7,799 persons interviewed for the first time in 1999, 21.3% (n=1,661) completed a personal interview in each of the following waves including the fifteenth wave conducted in 2013 (Table 5.3). At the household level (see Table 5.1, % A), the drop in participation was particularly high in the second (13%) and the fourth (11%) waves, compared to the other waves in the 1999-2005 period (5 to 8%). Since 2006, the number of households interviewed increased in general due to various measures taken to convert households, who were abandoned earlier, into respondents

At the individual level (see Table 5.2, % A), the drop in participation was particularly high in the fourth (12%) wave as compared to the other waves in the 1999-2005 period (between 6 and 10%). From 2006 onward, the number of persons interviewed increased in general (but note again the slight drop in 2008) due to (1) various measures taken to convert households, and (2) extra efforts made by the interviewers of M.I.S. Trend, to enrol all eligible household members for an individual interview.

*SHP_II*

In the SHP_II (waves 1 to 10), 2,538 households and 3,654 individuals were first interviewed in 2004. In the tenth wave, 1,488 households and 2,327 persons responded. At the household level (see Table 5.1, % A), there was a clear drop in participation in the second wave (29%, compared to 5 to 8% in the 2004-2007 period[6]). In 2008, the number of interviewed households increased due to renewal of contacts with households who were abandoned earlier because of double refusal (like for the SHP_I).

At the individual level (Table 5.2, % A), the drop in participation was – as was the case at the household level – particularly strong in the second wave (28%), compared to later waves, when the drop in participation was between 2 and 6%. In 2008, the number of persons validly interviewed increased slightly as a result of the measures mentioned under SHP_I. In 2008, 2012 and 2013, however, there was a slight decrease in participation on the individual level too.

[6] Contrary to the SHP_I starting in 1999, the household recruited in 2004 were not explicitly asked to commit themselves for several years. According to the interviewers, many households were surprised to be called one year later, to be interviewed again in the ongoing panel study.

*SHP_III*

In 2013 the first wave of the third panel started (SHP_III). In this first wave 3,989 households were interviewed. On the individual level, 6,090 respondents completed a biographical questionnaire.

Table 5.1 Number of *households* interviewed in SHP_I, SHP_II and SHP_III (1999-2013)

| Year | Wave | SHP_I n | %* A | %** B | SHP_II n | %* A | %** B | SHP_III n | %* A | %** B | SHP_I+II+III n |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 | 1 | 5,074 | 100 | 100 | | | | | | | 5,074 |
| 2000 | 2 | 4,425 | 87 | 87 | | | | | | | 4,425 |
| 2001 | 3 | 4,139 | 82 | 94 | | | | | | | 4,139 |
| 2002 | 4 | 3,582 | 71 | 87 | | | | | | | 3,582 |
| 2003 | 5 | 3,227 | 64 | 90 | | | | | | | 3,227 |
| 2004 | 6/1 | 2,837 | 56 | 88 | 2,538 | 100 | 100 | | | | 5,375 |
| 2005 | 7/2 | 2,457 | 48 | 87 | 1,799 | 71 | 71 | | | | 4,256 |
| 2006 | 8/3 | 2,537 | 50 | 103 | 1,684 | 66 | 94 | | | | 4,221 |
| 2007 | 9/4 | 2,817 | 56 | 111 | 1,494 | 58 | 89 | | | | 4,311 |
| 2008 | 10/5 | 2,718 | 54 | 96 | 1,546 | 61 | 103 | | | | 4,264 |
| 2009 | 11/6 | 2,930 | 58 | 108 | 1,476 | 58 | 95 | | | | 4,406 |
| 2010 | 12/7 | 2,985 | 59 | 102 | 1,557 | 61 | 105 | | | | 4,542 |
| 2011 | 13/8 | 2,977 | 59 | 100 | 1520 | 60 | 97 | | | | 4,495 |
| 2012 | 14/9 | 2,968 | 58 | 100 | 1,493 | 59 | 98 | | | | 4,461 |
| 2013 | 15/10/1 | 2,881 | 57 | 97 | 1,488 | 57 | 100 | 3,989 | 100 | 100 | 8,358 |

*These percentages are calculated on the basis of the number of interviews conducted in the first year (1999, 2004 or 2013).
**These percentages are calculated on the basis of the number of interviews conducted in the previous year. They may therefore exceed 100%.

Table 5.2 Number of *persons* interviewed in SHP_I, SHP_II and SHP_III (1999-2013)

| Year | Wave | SHP_I n = | %* A | %** B | SHP_II n = | %* A | %** B | SHP_III n = | %* A | %** B | SHP_I+ II + III n = |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1999 | 1 | 7,799 | 100 | 100 | | | | | | | 7,799 |
| 2000 | 2 | 7,073 | 91 | 91 | | | | | | | 7,073 |
| 2001 | 3 | 6,601 | 85 | 93 | | | | | | | 6,601 |
| 2002 | 4 | 5,700 | 73 | 86 | | | | | | | 5,700 |
| 2003 | 5 | 5,220 | 67 | 92 | | | | | | | 5,220 |
| 2004 | 6/1 | 4,413 | 57 | 85 | 3,654 | 100 | 100 | | | | 8,067 |
| 2005 | 7/2 | 3,888 | 50 | 88 | 2,649 | 72 | 72 | | | | 6,537 |
| 2006 | 8/3 | 4’091 | 52 | 105 | 2,568 | 70 | 97 | | | | 6,659 |
| 2007 | 9/4 | 4,630 | 59 | 113 | 2,350 | 64 | 92 | | | | 6,980 |
| 2008 | 10/5 | 4,494 | 58 | 97 | 2,410 | 66 | 103 | | | | 6,904 |
| 2009 | 11/6 | 4,800 | 62 | 107 | 2,309 | 63 | 96 | | | | 7,109 |
| 2010 | 12/7 | 5,057 | 65 | 105 | 2,489 | 68 | 108 | | | | 7,546 |
| 2011 | 13/8 | 5,103 | 65 | 101 | 2,481 | 68 | 100 | | | | 7,584 |
| 2012 | 14/9 | 5,032 | 65 | 99 | 2,414 | 66 | 97 | | | | 7,446 |
| 2013 | 15/10/1 | 4,880 | 63 | 97 | 2,327 | 64 | 96 | 6,090 | 100 | 100 | 13,297 |

*These percentages are calculated on the basis of the number of interviews conducted in the first year (1999, 2004 or 2013).
**These percentages are calculated on the basis of the number of interviews conducted in the previous year. They may therefore exceed 100%.

Table 5.3 Number of *persons* interviewed longitudinally in every wave (SHP_I and SHP_II)

| Year | Wave | SHP_I (fully longi-tudinal) n = | %* A | %** B | SHP_II (fully longi-tudinal) n = | %* A | %** B |
|---|---|---|---|---|---|---|---|
| 1999 | 1 | 7,799 | 100 | 100 | | | |
| 2000 | 2 | 6,335 | 81 | 81 | | | |
| 2001 | 3 | 5,429 | 69 | 86 | | | |
| 2002 | 4 | 4,480 | 57 | 83 | | | |
| 2003 | 5 | 3,888 | 50 | 87 | | | |
| 2004 | 6/1 | 3,076 | 39 | 79 | 3,654 | 100 | 100 |
| 2005 | 7/2 | 2,622 | 34 | 85 | 2,395 | 66 | 66 |
| 2006 | 8/3 | 2,399 | 31 | 91 | 1,930 | 53 | 81 |
| 2007 | 9/4 | 2,209 | 28 | 92 | 1,601 | 44 | 83 |
| 2008 | 10/5 | 2,060 | 26 | 93 | 1,400 | 38 | 87 |
| 2009 | 11/6 | 1,952 | 25 | 95 | 1,289 | 35 | 92 |
| 2010 | 12/7 | 1,876 | 24 | 96 | 1,220 | 33 | 95 |
| 2011 | 13/8 | 1,811 | 23 | 97 | 1,155 | 32 | 95 |
| 2012 | 14/9 | 1,739 | 22 | 96 | 1,102 | 30 | 95 |
| 2013 | 15/10 | 1,661 | 22 | 96 | 1,039 | 28 | 94 |

### *5.1.2 Attrition in SHP_I and SHP_II*

Not only response rates are decisive in assessing quality of the data. Of crucial importance is the extent to which nonrespondents differ from respondents on relevant characteristics. As a result nonresponse can cause nonresponse bias in survey estimates (Behr et al. 2005, Groves 2006, Groves and Peytcheva 2008). Hence, the central concern in the analysis of attrition is selection bias, because selection bias results in a distortion of the estimation results due to non-random patterns of attrition. To guarantee the quality of the data, it is important to closely monitor the impact of attrition on the representativeness of the longitudinal sample and how this might impact variables of interest and research findings.

The common distinction made in the literature on nonresponse and attrition, is between attrition that is completely at random, attrition that is selective on variables unobserved in the data, and attrition that is selective on variables observed in the data (Alderman et al. 2001). In the analyses presented in this section, we will consider attrition on observed variables. This kind of attrition may introduce bias in the estimates of interest, but this bias is amenable to statistical solutions. Two analyses are performed on the impact of attrition in the SHP on an annual basis; one focusing on group representativeness, the other on potential bias in variables of interest.

We refer to Appendix C for a general impression of how respondents with various response patterns differ from each other on demographic characteristics and several measures of social involvement. A comparison is made between respondents who are in the panel every wave, respondents with an irregular response pattern and respondents who have dropped out of the panel. Note that calculations are based on unweighted data. For the complete study we refer to the SHP Working Paper 1-09 (Voorpostel, 2009) on the website (http://forscenter.ch/en/our-surveys/swiss-household-panel/) and Voorpostel (2010). A comparable study on attrition in relation to income can be found here as well

(Kuhn, 2009). We also refer to other studies on attrition in the SHP (Lipps 2007), including a comparison to attrition in other panel studies (Lipps 2009).

*Effects of attrition on variables of interest*

This is an overview of the results and methods of analysis to study the effect of attrition on a large number of variables (for a detailed description, see Weaver 2010). The goal is to describe the consequences, in terms of bias, caused by the continuing and selective loss of individual participants to the survey over the course of time. One statistical solution to attrition is the use of weights. Weights attempt to correct non-response at all levels; personal, household, and grid. As we will see, some variables in the SHP are affected by attrition and we can verify an appearance of bias in the statistics. The weights often correct for attrition and therefore compensate for the bias but sometimes the bias persists even after weighting or, in rare cases, is a result of weighting itself.

In order to identify the variables touched by attrition, we examine all variables that were included in the latest wave and in the previous waves. Attrition from both the first sample of the Swiss Household Panel (SHP_I) and the first and second (SHP_II) sample combined is considered. We then compare means and frequencies calculated with the value of the first year of the variable ££ in (99,…,13) on the sub-populations of respondents still present in the latest wave as follows:

$$\begin{aligned} sL^{R\pounds\pounds} &= sL^{\pounds\pounds} \\ sL^{R\$\$} &= sL^{\pounds\pounds} \cap sL^{\$\$} \\ &\cdots \\ sL^{R11} &= sL^{\pounds\pounds} \cap sL^{12} \end{aligned},$$

where $sL^{\pounds\pounds}$ are the longitudinal respondents (original sample members) in 1999 for the SHP_I and 2004 for the combined panel SHP_I and SHP_II, and $sL^{\$\$}$ are the longitudinal respondents in year 20$$. Basically, we test to see if samples that still respond in a later year are representative of the same individuals that responded in the first year. The tests run through the most recent released version (wave 15).

One has to be cautious with the results presented below because a selective process may have already occurred at the first wave of data collection, introducing bias. This is undetectable by this method. Moreover, the calculations are done on the entire sample of longitudinal respondents and there are no comparisons on sub-populations (by sex, age class, nationality, etc.). Such comparisons could reveal differences which are not observed at the aggregate level. Of course, the inverse is also possible.
The variables identified as being biased by attrition (in particular variables related to leisure and politics) need to be studied with care by the researchers who use them in their analyses. These results do not mean that these variables are unusable. However, they show that the phenomenon of attrition can certainly not be ignored. The researcher must account for this in his analyses and, if necessary, in the given interpretation.
Note also that the variables for which a bias occurred after weighting and not before, were part of the rotating module “Leisure and culture” this year.

For the first panel, there are 1215 variables that appear in at least one wave of the personal files and are thus eligible for testing. Out of these, there are 361 deemed unfit to be tested. The following groups of variables were excluded:

- proxy variables, as it concerns reports on other household members
- variables with the same response in all waves considered, such as status
- variables with too few respondents (for categorical variables, if no category has at least 30 respondents, and for numeric, if the total number of respondents is less than 30)
- variables of which the modality is too high (this is for categorical variables with more than 100 distinct responses, such as the 4 digit isco job classification)
- variables for which testing does not make sense, such as id variables, dates, and weights.

Table 5.4 gives a summary of the results. If a variable has bias detected for any year without weights, then it falls into the category of "Difference without weight". If a variable has bias detected for any year with weights then it falls into the category of "Difference with weight".

Table 5.4: Composite results for the first panel

| Difference without weight | Difference with weight | Explanation | Occurrences out of the 1215 variables in the personal files all waves (percent out of the 854 variables tested in parentheses) |
|---|---|---|---|
| - | - | Not compared either because of insufficient response, too high of modality, or it did not make sense to test the variable. | 361 |
| No | No | No difference, with or without weights. The variable considered does not appear to be biased from attrition. | 652(76.3%) |
| No | Yes | No difference without the weights, but the weighted results are different. The weighting introduces bias. | 49(5.7%) |
| Yes | No | We observe a difference without weights, but it disappears when the results are weighted. The variable is therefore touched by attrition but the weighting corrects the phenomena. | 36(4.2%) |
| Yes | Yes | We observe a difference without the weight and it persists even with weighting. The variable is therefore touched by attrition without the possibility of correction by weighting. Mainly leisure and politics variables. | 117(13.7%) |

For the combined panel, there are 854 variables that appear in at least one wave of the personal files (since 2004). Out of these, 242 are deemed unable to be tested. The reasons are the same as those above. Table 5.5 gives a summation of these results. The categories work as above.

Table 5.5: Composite results for the combined panel

| Difference without weight | Difference with weight | Explanation | Occurrences out of the 854 variables in the personal files all waves (percent out of the 612 variables tested in parentheses) |
|---|---|---|---|
| - | - | Not compared either because of insufficient response, too high of modality, or it did not make sense to test the variable. | 242 |
| No | No | No difference, with or without weights. The variable considered does not appear to be biased from attrition. | 508(83%) |
| No | Yes | No difference without the weights, but the weighted results are different. The weighting introduces bias. | 24(3.9%) |
| Yes | No | We observe a difference without weights, but it disappears when the results are weighted. The variable is therefore touched by attrition but the weighting corrects the phenomena. | 35(5.7%) |
| Yes | Yes | We observe a difference without the weight and it persists even with weighting. The variable is therefore touched by attrition without the possibility of correction by weighting. Mainly leisure and politics variables. | 45(7.4%) |

## *5.2 The weighting scheme of the SHP*

Compared to cross-sectional surveys, longitudinal household panels face some additional methodological challenges. One of them is the complex weighting scheme. On one side, the objective of longitudinal surveys is to analyse the evolution of a population over time. This is done using longitudinal weights. On the other side, longitudinal surveys are also used for cross-sectional analyses, referring to the population in any given year. For this purpose, there is also a need for cross-sectional weights. Furthermore, in a household panel survey, cross-sectionally there are not only individuals to weight for every wave, but also households.

In this chapter, we describe the current weighting scheme and the construction of each of the weights. We then discuss the purpose of and potential for incorporating different advancements, and we outline the time frame required to implement them. This discussion is designed to give an idea of how the weights are produced and what techniques are used. If one is interested in a detailed exposition on the production of the weights for a given year, one can find the complete documentation here:
http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/methods/weighting/.

*5.2.1 Overview of techniques*

In this section we present four major techniques used for the construction of weights in the SHP. The process of segmentation is used to determine the probability of being "in" the panel, the inverse of which is the basis of the weights, and thus represents an adjustment for non-response. The generalized weight share method (GWSM) is used for both the cross-sectional individual and household weights in order to allocate a weight to cohabitants, of whom the inclusion probability is not known. The third approach concerns the combination of the two panels that is done according to a factor allocating a relative importance to each of the samples based on its size. Finally, we briefly present the calibration method. Calibrations are used to adjust all the weights so that certain population sums are correct (equal to the sums of the non-institutionalized Swiss population). The adjustments due to calibration are chosen to be as small as possible to minimize the introduction of bias for non-correlated variables.

*Adjustments for non-response*

Modelling of non-response in the SHP is done by the process of segmentation (Kass, 1980). The goal of segmentation is to determine the response probability of the panel members (or households) and is thus used for modelling non-response either to the grid, the household questionnaire or the individual questionnaire. The method proposed by Kass is the Chi-squared Automatic Interaction Detector (CHAID) procedure. When modeling the non-response, the dependent variable consists of the response status, whereas socio-demographic information is used as independent variables. As one needs information that is available also for non-respondents, the choice of the variables used to adjust non-response is limited.

CHAID proceeds in consecutive steps and represents a kind of classification tree that shows at each intersection the auxiliary variable that best models the non-response. The algorithm first chooses the variable for the partition of the data that is most highly associated with the response status according to the highest Pearson Chi-squared. The data is then divided into two groups, according to this chosen predictor. Each of these subgroups is then analyzed separately and independently of the other, to produce further subdivisions (Kass, 1980). It doesn't have to be the same variable in each of the two subsamples and the predictors can be used several times to partition the data (Kalton and Brick, 2000).

The partitioning process goes so on until each sub-group satisfies one of the following conditions: (1) none of the remaining variables is found to be significant on response rate, (2) the number of members of the sub-group (including non-respondents) would fall below a given level (30) if the sub-group were divided, and (3) the response rate would fall below a given level (.3) if the sub-group were divided. The resulting subsets represent homogenous response groups (HRG). Adjustment for non-response is based on these HRG: the adjustment factor corresponds to the inverse of the response rate of a given HRG.

*Generalized weight share method*

Because the inclusion probabilities of new household entrants (cohabitants) are not known, we apply an alternative strategy in order to allocate them a cross-sectional indi-

vidual weight. This strategy consists of using only the (known) inclusion probabilities of the original sample members and allocating parts of these weights within a household to cohabitants. The strategy used in the SHP is the Generalized Weight Share Method (GWSM) of Lavallée (2007).

The GWSM produces an estimation weight for each unit surveyed in the target population $U^B$ (cohabitants) This estimation weight corresponds to the average of the sampling weights of the population $U^A$ (original sample members) from which the sample is selected.

We calculate the weight $w_{ik}$ for each non-original sample member as follows:

$$w_{ik} = \frac{\sum_{k=1}^{M_i^B} w'_{ik}}{\sum_{k=1}^{M_i^B} L_{ik}^B}$$

where the numerator represents the sum of the initial weights $w'_{ik}$ for all original sample members *k* in each household *i* and the denominator is the total number of links for that household with the population of reference $U^A$, that is the number of original sample members in each household *i*.

*Combination of multiple panels*

Because we have multiple panels, we have to consider the way the panels are combined in order to enable valuable cross-sectional estimations. The combination of the panels is performed using the method of Merkouris (2001).

His method consists of allocating each unit a factor $p_l$ ($0 < p_l < 1$) when the unit is part of the $l^{th}$ sample.. The combination of the the panels occurs at the level of the seven regions and is a so-called “convex combination”, as the allocation factor defines the relative importance of the samples according to their size.

$p_l = \frac{n_l}{\sum_{l=1}^{L} n_l}$, where $n_{l1}$ is the number of responding units from the $l^{th}$panel and L is the number of panels. Evidently, the sum of the combination factors is 1. The unit is either the person - in the case of the individual weights - or the household in the case of the household weights. If the unit is a member of the SHP_I, the weight is then multiplied by the factor $p_1$ and if the unit is a member of the SHP_II the weight is multiplied by the factor $p_2$ and so on.

*Calibrations to known population totals*

After the adjustment for non-response and the combination of the two panels, the weights are softly calibrated (Guggemos, and Tillé, 2010) using population totals coming from ESPOP until 2010 and STATPOP since 2011. There were two different calibration total classes depending on the information available and memory restraints. The first is the classical version with totals on:

- sex*age category (0-13, 14-24, 25-34, 35-44, 45-54, 55+),

- the number of individuals living in the seven major statistical regions Lake Geneva (VD, VS and GE), Middleland (BE, FR, SO, NE and JU), North-West Switzerland (BS, BL, AG), Zurich, East Switzerland (GL, SH, AR, AI, SG), Central Switzerland (LU, UR, SZ OW, NW) and Ticino,
- the number of individuals with Swiss nationality, and
- the number of married individuals.

The second uses the same variables but breaks all totals up by age category. One should note that values for age 0-13 are used only for the household cross-sectional weights and that the number of married individuals is not available for the longitudinal weight for SHP_I. Weights calibrated using totals of the first type were the first panel longitudinal weight and the cross-sectional household weight. The remaining weights were calibrated using the second type.

*5.2.2 Overview of current weights and their construction*

Currently, four types of weights are produced: (a) individual longitudinal weights, (b) individual cross-sectional weights, (c) household cross-sectional weights, and (d) transitional factors.

The current SHP weights are based on the initial weight, POIDINIT, which is the weight at baseline (1999 for SHP_I,2004 for SHP_II and 2013 for SHP_III). In a given wave, longitudinal respondents (original sample members) are modelled for response at the level of the grid, using segmentation (Graf 2008). Segmentation separates the individuals into response homogeneity groups (RHG) based on variables that are strong indicators of response. The inverse of the grid response rate for each RHG is the adjustment factor for the weight. Specifically, this adjusted weight is

$$P\_NRGRIL = \frac{POIDINIT}{\pi_{HRG}}, \qquad (1)$$

where $\pi_{HRG}$ is the response rate for the given RHG. This adjusted weight becomes the basis for all of the wave specific weights. These types of weights are all determined using the same methodology, which combines segmentation and calibration using population characteristics.

*Individual longitudinal weights*

Here, the segmentation is done on the response to the individual questionnaire for longitudinal respondents, conditional on having responded to the grid (no individuals are questioned before the grid is completed). After the adjustment to the non-response for the grid, a second adjustment is performed, this time at the individual questionnaire level. In order to produce the final longitudinal weight, this weight is calibrated to reflect the distribution in the population at baseline regarding sex by age category, nationality and region from ESPOP/STATPOP.

*Individual cross-sectional weights*

A weight sharing is performed in households that have non-original sample members (non-OSMs). The weight share depends on whether the non-OSMs were present at the

moment the sample was selected (SHP_I 1999, SHP_II 2004 and SHP_III 2013). By present we mean that they were eligible for selection into the panel (lived in an independent household in Switzerland at the time of the selection). If they were present, the weight is the same for all individuals of the household and is equal to

$$PTI\_PAR = \frac{\sum P\_NRGRIL}{L+P}, \qquad (2)$$

where L is the number of longitudinal individuals and P is the number of non-OSMs initially present. If the non-OSMs were not present at baseline, the weights are

$$PTI\_PAR = \begin{cases} P\_NRGRIL & \text{for longitudinal individuals} \\ \dfrac{\sum P\_NRGRIL}{L} & \text{for non - OSM initially absent} \end{cases} \qquad (3)$$

Once the weight sharing is done, it is adjusted for non-response to the individual questionnaire, using segmentation. The sample includes all individuals older than 14 living in households having responded to the grid and containing at least one longitudinal respondent. Finally, the weight is calibrated on the estimated totals of sex by age, nationality, civil status, and region for the year under consideration (using data from ESPOP/STATPOP).

*Household cross-sectional weights*

All members of a household are given the same weight. The way the weights are shared is the same as in equation (2) (where P may be equal to 0). Next, this weight is adjusted by segmentation for non-response to the household questionnaire. Finally, a calibration is done under the restriction that all members of the same household must have the same weight (again using data from ESPOP/STATPOP).

*Individual transitional factors*

Whereas the current longitudinal weights always refer to the first wave, the transitional factors are useful for the development of "custom made" longitudinal samples. It also allows for the longitudinal weighting of non-OSMs. One takes the waves of interest, t, …, t+k. Then the longitudinal weight for the sample of interest is:

$$longitudinal_{t,t+k} = \text{cross-sectional } w_t * \text{transitional } f_{t+1} * \ldots * \text{transitional } f_{t+k}$$

Determining these factors is a two-step process. First, segmentation is used to model response to the grid at wave t given response to the individual questionnaire in wave t-1. Second, response to the individual questionnaire in wave t is modelled given response at the grid at the same wave. In the development of these factors certain theoretical weaknesses were uncovered. This comes into play if many waves are strung together. Because of this, we recommend not to use more than three consecutive years (see

http://aresoas.unil.ch/DataWeb/Examples/TransitionalFactors/SHP_transitional_factors.pdf).

*5.2.3 Selection of the appropriate weight*

It is essential to use weights in order to have estimates that are representative of the underlying population. Cross-sectional weights always refer to the year analysed, both for households and for individuals, whereas longitudinal weights (individuals) always extrapolate to the population resident in Switzerland in 1999 for SHP_I, to the population resident in Switzerland in 2004 for the combined panel SHP_I and SHP_II and for the population resident in Switzerland for the combined panel SHP_I, SHP_II and SHP_III. The transitional factors allow weighting respondents to a selection of consecutive waves and refer to the first year of the sequence.

Therefore, in the selection of a weight, one needs to know whether the study concerns only one year, i.e. is cross-sectional, or considers several years and is longitudinal in nature.

For each of the types of delivered weights, there are two weights produced. One is to give the weighted size of the sample, the size of the relevant Swiss population. These are the weights as described in the constructions above. These weights should be used when looking for population totals. The second is to maintain the sample size. That is to say that the weighted sum of sample members is equal to the un-weighted sum. These weights should be used when running regressions, particularly logistic regressions. These weights differ by multiplication of a constant factor only. Table 5.6 gives a list of the names of all the weight variables as they appear in the data sets. Furthermore it describes their primary use. One should note that resident refers to the non-institutionalized population residing in Switzerland.

Table 5.6 List of weights contained in the dataset, variable names and description

| Types of weights | Variable name | Description |
|---|---|---|
| **Longitudinal weights** | | |
| SHP_I individuals | wp$$LP1P | Weights for longitudinal adults expanded to the resident Swiss population of 1999 |
| | wp$$LP1S | Weights expanded to the sample size of longitudinal adults in the first panel |
| SHP_I and SHP_II (combined) Individuals | wp$$L1P | Weights for longitudinal adults expanded to the resident Swiss population of 2004 |
| | wp$$L1S | Weights expanded to the sample size of longitudinal adults in the combined panels |
| **Cross-sectional weights** | | |
| SHP_I and SHP_II (combined) individuals | wp$$T1P | Weights expanded to the resident Swiss population of current year |
| | wp$$T1S | Weights expanded to the sample size of the combined panels |
| SHP_III individuals | wp$$T3P | Weights expanded to the resident Swiss population of current year |
| | wp$$T3S | Weights expanded to the sample size of the SHP_III |
| SHP_I, II and III (combined) individuals | wp$$TP | Weights expanded to the resident Swiss population of current year |
| | wp$$TS | Weights expanded to the sample size of the combined panels (SHP_I, II and III) |
| SHP_I and SHP_II (combined) households | wh$$T1P | Weights expanded to the resident Swiss population of current year |
| | wh$$T1S | Weights expanded to the sample size of individuals in the households |
| SHP_III households | wh$$T3P | Weights expanded to the resident Swiss population of current year |
| | wh$$T3S | Weights expanded to the sample size of individuals in the households |
| SHP_I_II and III (combined) households | wh$$TP | Weights expanded to the resident Swiss population of current year |
| | wh$$TS | Weights expanded to the sample size of individuals in the households |

*Note* $$ corresponds to the two last digits of the year in question.

One should note that the longitudinal weights make reference to the "first year" that is 1999 for the first panel, 2004 for the combined panel of SHP_I and SHP_II and 2013 for the combined panel SHP_I-III. Although this may not be ideal for some analyses, it is generally better to use a slightly imperfect longitudinal weight which will at least take into account inclusion probabilities and non-response then none at all.

It is worth remembering that for every first year of a panel the cross-sectional weights can also be seen as longitudinal weights (evidently only at the individual level). I.e. wp13T3P (and wp13T3S) are the "pseudo" longitudinal weights for the third panel and wp13TP (and wp13TS) are the "pseudo" longitudinal weights for the combined panel (SHP_I, II and III).

Note also that, due to the fact that the questionnaires used in the first wave of the SHP_III differed from the SHP_I and SHP_II (individual questionnaire vs. biographical questionnaire) the combined (SHP_I, II and III) individual weights can only be used at the grid level. For this reason they are delivered on demand only.
It is also important to keep in mind that the household weights can be used in two different manners. First, they can be used for analyses on the household level, using the

household files. An extrapolation thus makes reference to the total number of households in a given year. If one constructs a dataset containing both individual and household level data, one should pay attention to the fact that each household weight needs to be divided by the number of individuals of the respective household in order to get valuable results at the household level. The reason for this correction is that by merging the individual files and the household files, each individual receives the household weight. The weight of each household is thus multiplied by the number of household members. An extrapolation to the household totals would in this case represent the number of individuals instead of the number of households. The syntax (SPSS and STATA) for this correction can be found in the syntax example for the file creations that are released together with the data.

Second, the household weights can also be used at the individual level. In order to do so, one needs to merge the household files with the individual files. Then each individual gets the household weight. An extrapolation using the household weights would then correspond to the population totals of the respective year. In general, we recommend using the individual weights for analyses on the individual level. The use of the household weights for analyses on individual level makes however sense if one wishes to have a larger sample, as some information on the individuals is coming from the household questionnaire or the grid and is thus available also for non-respondents of a specific year.

#### *5.2.4 Addressing the complex sample structure in analyses*

Weighting provides estimates that are representative of the national population. Another issue has to be considered when using the SHP: the complex sample structure of the data. The standard procedures of common statistical software packages (e.g. SAS, SPSS, STATA) underestimate variance (Plaza and Graf, 2007) because they assume a simple random sample. As with most surveys, the SHP sample selection is more complex as it has stratification, clustering, and adjustments due to non-response. Such complex sample needs to be taken into account in the analysis to obtain appropriate estimates of the variance. For SAS users, the recommendation is to rely on the “survey” procedures, for example PROC SURVEYFREQ, PROC SURVEYMEANS, PROC SURVEYREG, PROC SURVEYLOGISTIC. For STATA users, the commands ‘svyset’ and ‘svy:’ have to be used. For SPSS users, the module ‘complex sample’ is needed.

## *5.3 Data cleaning: Consistency checks and corrections*

Before the data is released a few consistency checks are performed. First, the filters used in the questionnaire are checked. In the rare occasions in which a filter was applied wrongfully, a question was either asked when it should not have been, or was not asked when it should have been. In the first situation the answer to the question is deleted, and the value is set to -3 (not applicable, see missing value conventions). In the second situation a code of -7 is given (filter error, see missing value conventions).

Second, the value range of all questions with restricted response categories is verified. Values out of range are usually related to recoding mistakes and are corrected. The value ranges of open questions are not scrutinized, because setting a limit beyond which point values become highly unlikely is always arbitrary.

Third, the households and their individual members are examined to make sure there is information on all household members, and the number of household members adds up to the same number as in the household questionnaire. Also the variable related to response status is checked.

Finally, demographical variables are checked for consistency with earlier waves. This is done for gender, date of birth and civil status. For other variables the general rule is not to make changes retrospectively, i.e. when in a later wave of data collection an error is found in an earlier wave, this is not corrected for the earlier wave.

# CHAPTER 6 DATA DOCUMENTATION

## *6.1 Data files*

For every wave (every year) a household and an individual file are released. In addition to these annual files there are several other files: a household master file, an individual master file, a calendar file, a file containing information on respondents' last paid jobs, and a social origin file. All files are available in SAS, Stata[7] and SPSS format. See for a table with an overview of the different files the document "Getting started with the Swiss Household Panel data", downloadable from http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/user-guide-pdf/.

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### *6.1.1 Master files: households and individuals*

The master files of households and of individuals include all households and individual respondents that are in the panel or have been in the panel in the past. The files contain an overview of response statuses for all waves.

The household master file (**SHP_MH**) contains all households of both samples of the panel. For every wave it is documented who the reference person is, what interviews have been carried out and when they have taken place.

The individual master file (**SHP_MP**) contains all individuals who have resided in the participating households in any of the waves. This file includes the time-invariant variables gender, date of birth (month and year) and identification number of father and mother, as well as response statuses and interview dates for all waves.

See for details on the various files of the SHP_III 6.1.6a.

### *6.1.2 Annual files: households and individuals*

The annual household files (**SHP99_H_USER, SHP00_H_USER**, etc.) contain information from the household interviews complemented by information from the grid questionnaire. For the constructed variables see 6.3.

The information from the annual individual interviews (**SHP99_P_USER, SHP00_P_USER**, etc.) is included in the annual individual files. For the constructed variables in these files see 6.3.

For the complete questionnaires see "Questionnaires" under "Documentation" on http://forscenter.ch/en/our-surveys/swiss-household-panel/.

[7] Please not that Stata is case sensitive and that Stata data file names are in lower-case.

*6.1.3 Calendar file*

Using the answers in the individual questionnaire, the calendar file contains for every person the activity[8] status in each month. If the person has answered the individual questionnaire in wave x, information on his/her activity is contained for:

- the last 12 months if the person has not answered the individual questionnaire in the preceding wave;
- the period between the individual interview in wave x-1 and the individual interview in wave x if the person has answered the individual interview both in wave x and in the preceding wave.

The activity calendar is empty for waves in which a respondent did not answer the individual questionnaire.

The variable names in the calendar file are as follows:
JAN$$: activity status in January in the year $$
FEB$$: activity status in February in the year $$
MAR$$: activity status in March in the year $$ etc ...

The calendar questions in the questionnaire have changed twice over the course of the years. Three periods can be distinguished: wave 2 and 3, wave 4 and 5, and wave 6 and thereafter. For all waves, however, the professional status at the time of the survey is determined by the variables:

- P$$W01 to P$$W03 (to distinguish between in paid employment or not);
- P$$W39 and P$$W42 (to distinguish between fulltime and part-time employment);
- P$$W06 (to distinguish between unemployment and inactivity).

The respondents who did not work during the week preceding the survey or did not have a job are asked the following question (variable P$$W154):

*You are not currently in paid employment. However, since (month-year) have you had a paid job, also be it casual or on an irregular basis?*

Respondents who worked at the time of the survey were asked the following question (variable P$$W177):

*Since (month-year) has there been a change in the number of hours you work, have you started or ended an activity or even been unemployed?* (wave 2 to wave 5)

*Since (month, year) have you changed your professional status (employee, self-employed), changed the amount of hours you work (full time, part time), started or stopped work, or been unemployed?* (wave 6 and after)

In case the answer is “no” to this question, the activity status by the time of the interview is assumed to hold for every month that elapsed since the preceding interview, or for the last 12 months if the respondent did not respond to the individual questionnaire in the preceding wave. For these cases the appropriate value is imputed for all months since the last wave.

[8] In terms of labour market participation. Here the term “activity” is used.

In case the answer is “yes” to one of the questions above, i.e. if the person reported any changes in his/her status during the period considered, the calendar questions are asked and the employment situation is assessed for every month since the previous wave.

The calendar questions changed twice since the start of the survey. First, in wave 2 and 3 different questions were asked depending on whether or not the respondent had a paid job. Response categories differed between these two questions (see Table 6.1.1). In wave 4 and 5 both active and inactive respondents answered the same questions in the calendar, with slightly adapted response categories compared to earlier waves. Up to wave 5 it is possible to distinguish between large and small part time jobs. From wave 6 onwards this distinction is no longer made, but separate response categories for self-employed respondents and employees are introduced instead.

Because the calendar file contains information from all waves some detail present in the separate waves has been lost. The calendar file does not include a distinction between small and large part-time jobs, nor does it have a distinction between self-employed individuals and employees. Users of the data interested in analysing these distinctions are advised to use the calendar questions in the personal files of the appropriate waves.

In the calendar file the following codes are used:
1. Employed full time
2. Employed part time
3. Unemployed
4. Inactive
5. Unemployed or inactive (relevant for inactive respondents in W2 and W3 only)

Table 6.1.1 shows the different versions of the calendar questions in the individual interviews and the corresponding codes in the calendar file.

Table 6.1.1 Questions in the personal questionnaire related to the activity calendar and the corresponding codes in the calendar file

| W2 and W3 | | | | W4 and W5 | | W6 to present | |
|---|---|---|---|---|---|---|---|
| Original question Employed respondents | Cal-endar value | Original question Inactive respondents | Cal-endar value | Original question | Cal-endar value | Original question | Calen dar value |
| We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time or if you have not worked due to a period of unemployment, training or other reason? | | We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time? | | We are going to review the months between now and (month-year) and for each month, I would like you to tell me if you have worked full-time or part-time or if you have not worked due to a period of un-employment, training or other reason? | | We are going to review the months since (month, year) and for each month you should tell me whether your main activity was: full-time employee, part-time employee, full-time self-employed, part-time self-employed, unemployed, retired, training/education, housework, or any other situation? | |
| 1 fulltime job (>37h) | 1 | 1 fulltime paid job (>37h) | 1 | 1 fulltime paid job (>37h) | 1 | 1 Employee fulltime | 1 |
| 2 part-time job (19-36h) | 2 | 2 part-time paid job (19-36h) | 2 | 2 part-time paid job (19-36h) | 2 | 2 Employee part-time | 2 |
| 3 small part-time job (1-18h) | 2 | 3 small part-time job (1-18h) | 2 | 3 small part-time job (1-18h) | 2 | 3 Self-employed fulltime | 1 |
| 4 unemployed | 3 | 4 no job | 5 | 4 unemployed | 3 | 4 Self-employed part-time | 2 |
| 5 continued education/ voca-tional retraining | 4 | | | 5 continued education/ voca-tional retraining | 4 | 5 Unemployed | 3 |
| 6 other | 4 | | | 6 retired | 4 | 6 Retired | 4 |
| | | | | 7 other | 4 | 7 Student | 4 |
| | | | | 8 student | 4 | 8 At home (domestic work, chil-dren) | 4 |
| | | | | | | 9 Other inactive | 4 |

*6.1.4 Last job file*

This file contains information on the last job of all individuals who were a) inactive at the time of their first interview, and b) interviewed in person or by proxy in any of the waves since 1999.

The information on the last job is collected within the individual interview if the following three conditions are simultaneously met:

- The person is interviewed for the first time
- The person does not currently work (P$$W01, P$$W02 and P$$W03 ≠ 1)
- The person has already worked in a regular way in the past (P$$W07 = 1)

The information on the last job may also be collected in a proxy interview, if the following three conditions are simultaneously met:

- It is the person's first proxy
- The person does not work (i.e. in the household grid, G$$OCC ≠ 1 or 2)
- The person has already worked for at least one year (X$$W05)

Because this information is collected only once, it is not necessary to display it in the individual file in every wave. The information is combined in a file « last job», comprising the variables of the individual questionnaire and the proxy questionnaire, in which the wave identifier is renamed by $$ (SPSS) or __ (Stata, SAS). A separate variable (LJYY) indicates the wave in which the information is collected.

Note that if a respondent is not working at a given wave, but has been working in any of the previous waves, this information is not included in the last job file, but in the previous annual individual files. More information on how to merge files can be found here: http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/data-management/.

*6.1.5 Social origin file*

The social origin file contains information on the employment status of the parents when the respondent was 15 years old. All individuals who were personally interviewed in any of the waves are included.

Unique information about a person's social origin is collected during the first interview. It mainly relates to the composition of the household in which the person lived at the age of 15 and to the level of education and professional activities of both parents. Persons who are not yet 20 years old and still living with their parents are not asked about their parents' employment status. Note that individuals who have had their first interview before they turned 20 are not in the social origin file.

Given the uniqueness of this information, it doesn't make sense to attach it to each of the consecutive yearly waves. Therefore, the "social origin module" constitutes a specific file containing variable names, in which the usual two-digit number showing the year of the data collection is replaced by $$ (SPSS) or __ (Stata, SAS). A separate variable (OSYY) indicates the wave during which the data on the person's social origin have been collected.

The questions corresponding to the variables P$$O60 to P$$O65 have only been asked in the first wave (1999).

P$$O60 At age 15: Work in private households: Employer: Father
P$$O61 At age 15: Public Company status: Father
P$$O62 At age 15: Work in private households: Employer: mother
P$$O63 At age 15: Public Company status: Mother
P$$O64 At age 15: Work in private households: Employer: Other person
P$$O65 At age 15: Public Company status: Other person
Therefore, valid values are only available for the persons interviewed for the first time in wave 1. For all the others theses values are labelled 'missing'.

The questions regarding the parents' political orientation are asked since wave 4 (2002):
- P$$P46 Political position: Left, Right: Father
- P$$P47 Political position: Left, Right: Mother
In wave 4, every person responding to the individual questionnaire was asked these two questions in order to obtain this information also from persons having already been interviewed in previous waves in which the questions were not asked. Since wave 5, these two questions are part of the social origin module and are addressed only to persons who are interviewed for the first time. Consequently, the information is missing for persons who answered the social origin module before wave 4 and who did not participate in wave 4.

### *6.1.6 Biographical files*

Two sets of biographical data files are available to the SHP users. The most recent data come from the first wave of the SHP_III. Second, *biographical data* was collected from SHP_I sample members in 2001 and 2002. The data from the pilot study preceding the SHP_III in 2012-2013 are only available upon request.

#### *6.1.6a Biographical files SHP_III*

The fieldwork for the SHP_III began in September 2013 (parallel to the fieldwork of the SHP_I and the SHP_II). The questioning in the first wave of this second refresher sample takes the form of a biographical questionnaire (see for more details 2.4.7 and Chapter 4). The files contain for each respondent the complete life history on the domain in question.

Table 6.1.2 gives an overview of the different files of the SHP_III.

Table 6.1.2 Files biographical questionnaire

| | File name | Information |
|---|---|---|
| Household file Wave 1 | SHPIII13_H_USER | Household questionnaire |
| Indiviudual file Wave 1 | SHPIII13_P_USER | Basic information on the respondent |
| *Life domain:* | | |
| Residence | SHPIII_RE_USER | Information on geographical mobility |
| Residence permit | SHPIII_PM_USER | Information on work permits and the acquisition of Swiss citizenship |
| Living arrangements | SHPIII_LA_USER | Information on with whom the respondent lived over the life course |

| | | |
|---|---|---|
| Couple relations and civil status | SHPIII_CS_USER | Information on partner relationships and changes in civil status |
| Family events | SHPIII_FA_USER | Information on family events such as parental divorce, the birth of a child or a sibling, or the death of a parent |
| Professional activities | SHPIII_PROF_ACT_USER | Information on paid work, unemployment and periods of inactivity |
| Health | SHPIII_HEA_USER | Information on operations, accidents and mental health problems. |

The files on the various domains are “long files” or “vertical files” where each row contains one episode. Hence, respondents are included with as many rows as they mentioned episodes. Respondents experiencing different episodes in a given domain - for example they have held several jobs - take up multiple rows in the file (one for every job). An index variable is included to preserve the order of the episodes of respondents.

*6.1.6b Biographical files 2001-2002*

In 2001 and 2002 a retrospective biographical questionnaire was developed with questions regarding respondents’ educational, working, and family histories to obtain additional information about the respondents' life course prior to the panel study (SHP Questionnaires - Biography under Documentation/Questionnaires PDF/SHP-Biography[9]). This paper-and-pencil questionnaire was sent to the respondents by mail and was self-administered.

Biographical information was gathered in the following domains:

1. Living arrangements (LA)
2. Periods outside of Switzerland (SA)
3. Changes in civil status (CS)
4. Learned professions (LP)
5. Educational trajectory (ED)
6. Work life (WL)
7. Family events (FE)
8. Retirement (RE)

In order to assess the potentially negative impact of the self-administered biographical questionnaire on the participation in subsequent waves of the yearly CATI, a "test" survey was conducted in 2001. The results showed that the drop-out rates did not increase substantially as a result of the questionnaire sent in between two waves (Scherpenzeel et al., 2002). Consequently, the "main" survey was carried out in 2002 with those participants that had not been part of the "test" survey.

[9] The paper and pencil questionnaire is not available in English, but only in the interview languages German, French and Italian.

SHP_I *biographical data* are available for 5,560 individuals with the 2001 and 2002 surveys combined. Therefore, some variables only exist for one of the survey years (e.g. education history only for 2002), or only in an aggregated form (e.g. living arrangement for 2001). The overall participation rate was 53%, but over 80% among fully longitudinal panel survey respondents (years 1999-2004) participated in the biography survey (Budowski and Wernli, 2004).

The Biographical files include:
a) two "*horizontal" files* with lines representing individuals (Biography Master File – SHP0_MBI and Biography Data File SHP0_BH_USER), and

b) "*vertical" files* for **each** of the eight domains with lines representing "events" and not individuals, if appropriate (SHP0_BV&&_USER[10]).

SHP0_MBI
The Biography master file contains the identification numbers (idpers) of all individuals who answered the biographical questionnaire (in 2001 or 2002). The master file further includes individual *population* weights (wp00tbgp) and *sample* weights (wp00tbgs). For methodological reasons[11], weights of zero had to be attributed to 199 persons.

SHP0_BH_USER
In the **horizontal file** each row represents one respondent. It contains in total 281 variables representing for each domain per episode the beginning, end and description. For example, for every employment, starting date, end date and several characteristics of the job are included, all as separate variables. Also individual *population* weights (wp00tbgp) and *sample* weights (wp00tbgs) are included in this file.

The vertical files

1. Living arrangements: SHP0_BVLA_USER
2. Periods outside of Switzerland: SHP0_BVSA_USER
3. Changes in civil status: SHP0_BVCS_USER
4. Learned professions: SHP0_BVLP_USER
5. Educational trajectory: SHP0_BVED_USER
6. Work life: SHP0_BVWL_USER
7. Family events: SHP0_BVFE_USER
8. Retirement: SHP0_BVRE_USER

In the eight vertical files (one file per domain) a row represents one episode. Respondents experiencing different episodes in a given domain - for example they have held several jobs - take up multiple rows in the file (one for every job). An index variable is included to preserve the order of the episodes of respondents.

### *6.1.7 Interviewer files*

These files contain information gathered from the interviewers who conducted the SHP interviews by means of paper-and-pencil questionnaires. In all waves (except wave 1, 3

[10] && stands for the domain.

[11] The information of these respondents was of poor quality, or information needed to construct weights was lacking.

and 4) the interviewers answered a short questionnaire. The questionnaires measure a number of interviewer characteristics: demographic traits such as sex, age, language and education, but also characteristics such as the attitude of the interviewers towards this type of study and towards sensitive questions. The content of the questionnaires varies somewhat over time, following changing SHP research interests.

**Attention!**
The values of the variable "idint" in the Interviewer data files have been coded in order to protect the identity of the Interviewers. Consequently, the merging of the Interviewer-data with the Household and Individual level files is only possible after de-coding. Please contact Oliver Lipps for more details (oliver.lipps@fors.unil.ch). Note further that in 2008 (Wave 9), the interviewer ID changed. Because three digits to identify interviewers were not enough, all interviewers located in the Lausanne studio were added a value of 10,000 and all interviewers located in the Bern studio were added a value of 50,000. This is important for longitudinal interviewer analyses.

## *6.2 Variable naming conventions*

The variable names are coherent over time. The only change is found in the year indicator. In order to assure consistency, the following conventions were adapted.

Year related variables: _yydnn
Non-year related variables (individual number, sex,…): _dnn

Where _ depends on the level of information:
**P** = Person
**H** = Household
**G** = Grid
**X** = Proxy

Where **yy** denotes the year:
99 = 19**99** 00 = 20**00** 01 = 20**01** , ….

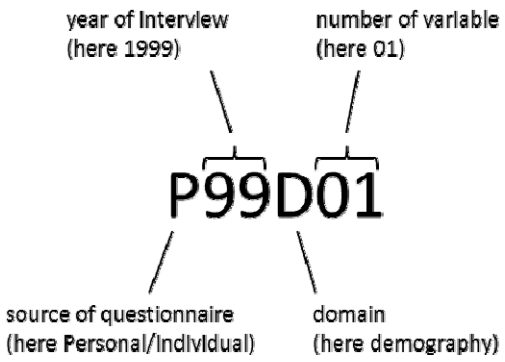
Where **d** denotes the **d**omain:

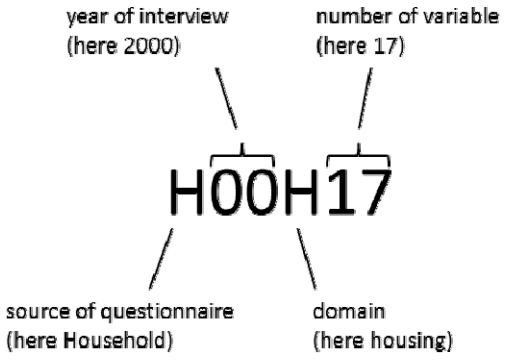
| | |
|---|---|
| a | Hobbies, leisure, free time, lifestyle, holidays, etc. |
| b | Biography |
| c | Health, constitution |
| d | Demographic variables |
| e | Education |
| f | Family (climate, relationships, work repartition,…) |
| g | Grid |
| h | Housing |
| i | Income, financial situation and living condition variables |
| l | Life-events |
| m | Geographical mobility |

| | |
|---|---|
| n | Social networks |
| o | Social origin |
| p | Politics |
| r | Religion |
| v | Values, aspirations, (other than politic) |
| w | Labour force, work ,social status |
| y | Violence |
| yth | Youth |
| z | Other variables |

Where **nn** is a two-digit number which refers to the **n**umber of the question, normally the position in a block dedicated to a specific topic.

Two examples:




Constructed variables do not follow the convention of variable naming and codification. These variables have a name corresponding to their contents (for example wstat00 for

working status in 2000). They are classified by their respective domains in the codebook and are found in the module to which they belong (see 6.3).

## *6.3 Constructed variables*

This paragraph presents background information on the construction of socio-demographic variables, education, labour market participation and income, socio-geographical information and weights. For all other constructed variables we refer to http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/variables-domain/.

### *6.3.1 Socio-demographic variables*

Tables 6.3.1 to 6.3.3 present the constructed socio-demographic variables in the household file (Table 6.3.1 and 6.3.2) and the individual file (Table 6.3.3)

Table 6.3.1 Constructed household typology variables in household file

| Variable name | Description | Information used for construction |
|---|---|---|
| HLDTYP$$ | Type of household Classification adopted from **European Community Household Panel** (Eurostat, 2003) and PACO | Relationship to other persons in household, civil status, number of persons and children in household |
| HLDFFS$$ | Household typology adopted from the **Fertility and Family Survey (FFS).** The FFS was launched by the United Nations Economic Commission for Europe and was commissioned by the Swiss Federal Statistical Office for Switzerland (www.bfs.admin.ch). | Relationship to other persons in household, civil status, number of persons and children in household |
| HLDCEN$$ | Household typology **Swiss Census**, Swiss Federal Statistical Office (www.bfs.admin.ch) | Relationship to other persons in household, civil status, number of persons and children in household |

Table 6.3.2 Constructed household composition variables in household file

| Variable name | Description | Information used for construction |
|---|---|---|
| MAXCOH$$ | Maximum duration of existence of household in years | Longest time of two members living together in years (information from grid) |
| NBADUL$$ | Number of adults in hld (>=18) | Information from grid |
| NBKID$$ | Number of children in hld (0-17) | Information from grid |
| AOLDKI$$ | Age of oldest coresident child (max. 17) | Information from grid |
| AYOUKI$$ | Age of youngest coresident child (max. 17) | Information from grid |
| ADUK1_$$ | Number of adult children in hld (>=18 & <30) | Information from grid and individual questionnaire |
| ADUK2_$$ | Number of adult children in hld (>=30) | Information from grid and individual questionnaire |
| NBB_$$ | New born baby: birth between two consecutive grid interviews or within last 12 months if no previous year grid interview | Information from household and individual master file |

Table 6.3.3 Constructed socio-demographic variables in individual files

| Variable name | Description | Information used for construction |
|---|---|---|
| AGE$$ | Age in year of interview<br>Difference from the year of birth and the official year of interview (official means the year of the beginning of the wave in question, even when interview took place beginning of following calendar year) | Collected once, confirmed next waves |
| SEX$$ | Gender of respondent | Collected once, confirmed next waves |
| CIVSTA$$ | Civil status in year of interview | Information from household grid and personal interview. Equivalent to question P$$D13. Individual information is considered more reliable than from reference person |
| MAXCOP$$ | Max. time in years of person living with someone else in household | Information from grid |
| NAT_1_$$ | First nationality | Grid and individual questionnaire |
| NAT_2_$$ | Second nationality | Grid and individual questionnaire |
| NAT_3_$$ | Third nationality | Grid and individual questionnaire |
| HAB_CH$$ | Duration of residence in CH: since when | Grid and individual questionnaire (G$$YCH + P$$D164) |
| OWNKID$$ | Number of own (biological or adopted) children (individual level) | Constructed based in individual questionnaire, verified by the respondent |

*6.3.2 Education*

Table 6.3.4 shows the constructed variables related to level of education. This list does not include the original or recoded variables related to education. For all available variables on education we advise to go to our website (http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/variables-domain/).

Table 6.3.4 Constructed variables related to education in the individual files

| Variable name | Description | Information used for construction |
|---|---|---|
| EDUCAT$$ | Highest level of education achieved (11 categories) | From household grid and individual interview. Individual interview considered more reliable. |
| EDCAT$$ | Highest level of education achieved (17 categories) | From household grid and individual interview. Individual interview considered more reliable. |

*6.3.3 Work status, occupation and social position*

Work status (WSTAT$$) is constructed from P$$W01 (working for pay last week), P$$W03 (have a job although not working last week) and P$$W06 (can start work immediately), from the individual questionnaire.

All social stratification measures presented below are based on the respondents' occupational titles, which were carefully coded by the Swiss Federal Office of Statistics[12]. This Swiss-specific code was then recoded into the International Standard of Classification of Occupations (ISCO-88), developed by the International Labour Office[13].
Users interested in ISCO-08 codes can transform swiss-specific occupation codes (P$$W28, X$$W01, P$$W111, X$$W06, P$$O12, P$$O29, P$$O46) with the .xls table provided on our website[14].
The SHP provides several occupational classifications. Only people who report an occupational title can be classified. The following classifications were constructed:

A. The Wright class structure (Wright III)
B. Erikson, Goldthorpe and Portocarero's Comparative Analysis of Social Mobility in Industrial Nations schema(CASMIN)
C. The European Socio-economic Classification (ESeC)
D. The Swiss Socio-Professional Categories (CSP-CH)
E. Treiman's Prestige Scale
F. The Cambridge Social Interaction and Stratification Scale (CAMSIS)
G. The Oesch Class Schema[15]

For a comprehensive description of the different classifications we refer to Bergman and Joye (2001), downloadable from http://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/methods/stratification/.

Tables 6.3.5 to 6.3.7 show the variables used to construct the different classifications. The classification of respondent's last job (is4laj$$), father's occupation and mother's occupation is done in the same way. The following explanation of the construction of the classification for respondent's current occupation is therefore also applicable to respondent's last occupation and father's and mother's occupation.

[12] Cf. Joye and Schuler (1995). For a discussion on how occupations are to some extent reflections of their national and temporal context, see Levy (2002).

[13] If some minor adjustments are made in order to adapt it to the European context, the label ISCO-88 (COM) is used. Cf. International Labour Office (1990). *International Standard Classification of Occupations, ISCO-88*. Geneva: ILO. Following the ISCO-88 classification, armed forces occupations are classified 0 in ISCO-88 1-digit code (major group), 1 in ISCO-88 2-digit (sub-major group), 10 in ISCO-88 3-digit (minor group) and 100 in ISCO-88 4-digit (unit group).

[14] Under the heading DATA/Support, Download data.
File is OCCUPATION_Excel_File.xls.

[15] Please note that the Oesch Class Schema is not included in the dataset as a variable. Rather, the commands (in SPSS, in SAS and in STATA) are provided for users to construct the variable. See http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/syntaxes-2/diverses/.

Table 6.3.5 Variables used to construct classifications for respondent's current occupation

| | Variable name | profession and sectors | education | Hierarchical level (management, supervision, production) | Number of employees of self-employed | status (self-employed, employee, etc.) | gender |
|---|---|---|---|---|---|---|---|
| WRIGHT3 | WR3MAJ$$ | IS4MAJ$$ | EDUCAT$$ | P$$W34 | P$$W31 | P$$W29 | |
| GOLDTHORPE | GLDMAJ$$ | IS4MAJ$$ | | P$$W34 | P$$W31 | P$$W29 | |
| ESeC | ESECMJ$$ | IS3MAJ$$ | | P$$W34 | P$$W31 | P$$W29 | |
| CSP | CSPMAJ$$ | P$$W28 | EDUCAT$$ | P$$W34 | P$$W31 | P$$W29 | |
| TREIMAN | TR1MAJ$$ | IS4MAJ$$ | | P$$W34 | P$$W31 | P$$W29 | |
| CAMSIS | CAIMAJ$$ | P$$W28 | | | | | SEX |
| OESCH | OESCH$$ | IS4MAJ$$ NOGA2M$$ | EDUCAT$$ | | P$$W31 | | |

Table 6.3.6 Variables used to construct classifications for respondent's last occupation

| | Variable name | Profession and sectors | education | Hierarchical level (management, supervision, production) | Number of employees of self-employed | status (self-employed, employee, etc.) | gender |
|---|---|---|---|---|---|---|---|
| WRIGHT3 | WR3LAJ$$ | IS4LAJ$$ | EDUCAT$$ | P$$W117 | P$$W114 | P$$W112 | |
| GOLDTHORPE | GLDLAJ$$ | IS4LAJ$$ | | P$$W117 | P$$W114 | P$$W112 | |
| ESeC | ESECLJ$$ | IS3LAJj$$ | | P$$W117 | P$$W114 | P$$W112 | |
| CSP | CSPLAJ$$ | P$$W111 | EDUCAT$$ | P$$W117 | P$$W114 | P$$W112 | |
| TREIMAN | TR1LAJ$$ | IS4LAJ$$ | | P$$W117 | P$$W114 | P$$W112 | |
| CAMSIS | CAILAJ$$ | P$$W111 | | | | | SEX$$ |
| OESCH | OESCH$$ | IS4LAJ$$ NOGA2L$$ | EDUCAT$$ | | P$$W114 | | |

Table 6.3.7 Variables used for classifications for father's and mother's occupation

| | Variable name | profession | education | Hierarchical level (management, supervision, production) | Number of employees of self-employed | status (self-employed, employee, etc.) |
|---|---|---|---|---|---|---|
| WRIGHT3 | WA3FAJ$$/ WA3MOJ$$ | IS4FAJ$$/ IS4MOJ$$ | P$$O17/ P$$O34 | P$$O16/ P$$O33 | P$$O14/ P$$O31 | P$$O13/ P$$O30 |
| GOLDTHORPE | GLDFAJ$$/ GLDMAJ$$ | IS4FAJ$$/ IS4MOJ$$ | | P$$O16/ P$$O33 | P$$O14/ P$$O31 | P$$O13/ P$$O30 |
| ESeC | ESECFA$$/ ESECMO$$ | IS3FAJ$$/ IS3MOJ$$ | | P$$O16/ P$$O33 | P$$O14/ P$$O31 | P$$O13/ P$$O30 |
| CSP | CSPFAJ$$/ CSPMAJ$$ | P$$O12/ P$$O29 | P$$O17/ P$$O34 | P$$O16/ P$$O33 | P$$O14/ P$$O31 | P$$O13/ P$$O30 |
| TREIMAN | TR1FAJ$$/ TR1MOJ$$ | IS4FAJ$$/ IS4MOJ$$ | | P$$O16/ P$$O33 | P$$O14/ P$$O31 | P$$O13/ P$$O30 |
| CAMSIS | CAIFAJ$$/ CAIMOJ$$ | P$$O12/ P$$O29 | | | | |

*A. The Wright class structure (Wright III)*

The classification presented here was developed several years after the first and second versions (cf. Western and Wright, 1994). It was used in particular for the study of social mobility. Its main advantage, already present in Wright's second classification, is that it is based on three dimensions: authority, expertise, and property. These dimensions form seven categories, instead of the twelve that Wright proposed in his second version. The reduction from twelve to only seven cells obviously increases the cell counts and, thus, statistical power.

A number of choices were made for the operationalization and adaptation of this schema, a few of which are to a certain extent necessarily somewhat arbitrary.[16]

a) Most cases of self-employment were unproblematic. In some cases, we attributed this status to family members employed in their own family business, as well as to those who considered themselves employees of their own enterprise.
b) The demarcation between "middle-class" and the "petty bourgeoisie" is often based on whether or not the respondent has employees. Here, by homogeneity with other classification schemas, we set the minimum qualification criteria to ten employees.
c) Competence derived from educational attainment are qualified in several ways:
    i) Directly relating to the occupation: ISCO-88 includes in its occupational classification an explicit reflection on the relations between educational attainment and occupational titles;
    ii) According to educational and training trajectories normally followed by those with a particular occupation as established from the Swiss Population Census of 1990;
    iii) Based on the respondents' attained educational and professional qualifications, whatever the relevance to their occupation.

Technically, the following rules apply:
a) "Owners/Employers": self-employed and at least 10 employees;
b) "Petty bourgeoisie": self-employed and less than 10 employees
c) "Managers-Experts": professional leading or supervisory role, as well as an advanced educational attainment;
d) "Managers": salaried with supervisory position and not yet classified in any of the above categories;
e) "Professionals": salaried with advanced educational attainment but without supervisory functions;
f) "Semi-Professionals": salaried with either advanced or middling educational attainment and with middling professional requirements;
g) "Worker": other workers.

*B. Erikson, Goldthorpe and Portocarero's Comparative Analysis of Social Mobility in Industrial Nations schema (CASMIN)*

[16] This recodification differs slightly from that of Levy et al. (1997).

The first Goldthorpe class schema was based on occupation and occupational status (self-employed, salaried). Originating from Goldthorpe and Hope's prestige scale (1974) and Goldthorpe's subsequent class schema (1987), two levels of classification were developed that included 7 or 36 categories. Further development in conjunction with the CASMIN (Comparative Analysis of Social Mobility in Industrial Countries) project makes the seven-category schema more suitable for comparative investigations, and it has established itself as the most prominent schema for comparative intergenerational mobility studies. Contrary to earlier versions, the current schema requires information on the respondents' number of employees and supervisory function. As a class schema that is primarily used in comparative research, it is most frequently based on ISCO-88.

Ganzeboom and Treiman (2003) have adapted the most recent Goldthorpe class schema into the following codes:

1) Higher controllers;
2) Lower controllers;
3) Routine non-manual employees;
4) Self-employed with employees;
5) Self-employed without employees;
7) Manual supervisor;
8) Skilled manual employees;
9) Semi- and unskilled manual employees;
10) Farm labour;
11) Self-employed farmers.

It is more difficult than with other schemas presented here to assess how respondents are classified because several dimensions are integrated in complex and unspecified ways.[17]

*C. The European Socio-economic Classification (ESeC)*

The European Socio-economic Classification (ESeC) is a European occupational classification based on the Erikson-Goldthorpe-Portocarero (EGP) Schema.[18]

The information required to create ESeC is:

- occupation coded to the minor groups (i.e. 3-digit groups) of the EU variant of the International Standard Classification of Occupations 1988 (ISCO88 (COM);
- details of employment status, i.e. whether an employer, self-employed or employee;
- number of employees at the workplace;
- whether a worker is a supervisor.

[17] See Bergman and Joye (2001) for a more detailed discussion.
[18] This classification was developed by a consortium of nine institutes from the UK, Germany, France, the Netherlands, Sweden, Italy and Ireland. See for more information http://www.iser.essex.ac.uk/research/esec

Table 6.3.8: The European Socio-economic Classification

| | ESeC Class | Common Term |
|---|---|---|
| 1 | Large employers, higher grade professional, administrative and managerial occupations | Higher salariat |
| 2 | Lower grade professional, administrative and managerial occupations and higher grade technician and supervisory occupations | Lower salariat |
| 3 | Intermediate occupations | Higher grade white collar workers |
| 4 | Small employer and self-employed occupations (excluding agriculture etc) | Petit bourgeoisie or independents |
| 5 | Self-employed occupations (agriculture etc) | Petit bourgeoisie or independents |
| 6 | Lower supervisory and lower technician occupations | Higher grade blue collar workers |
| 7 | Lower services, sales and clerical occupations | Lower grade white collar workers |
| 8 | Lower technical occupations | Skilled workers |
| 9 | Routine occupations | Semi- and nonskilled workers |
| 10 | Never worked and long-term unemployed | Unemployed |

The primary distinction in an employment relations approach is that between *employers*, who buy the labour of others and assume some degree of authority and control over them; *self-employed* (or *'own account'*) *workers* who neither buy labour nor sell their labour to others; and *employees*, who sell their labour to employers.

Employees are further differentiated according to the employment relations of their occupation, employers are separated by size of establishment and the self-employed according to occupation. Broadly speaking, the kind of contracts employees have depend upon (a) how easily their work may be monitored and controlled by the employer and (b) 'asset specificity', i.e. how specific and crucial their knowledge of technical and organizational issues is to the employer. When monitoring is difficult and asset specificity is high, a service relationship will be typical; labour contracts apply where labour is more easily replaceable in these terms.

More information on the ESeC can be found here.

*D. The Swiss Socio-Professional Categories (CSP-CH)*

The Swiss Socio-Professional Categories (CSP-CH; Joye and Schuler, 1995) are based on the occupational coding of the Swiss Federal Office of Statistics, as well as educational achievement. The logic of the CSP-CH is as follows:

Table 5.3.9 Swiss Socio-Professional Categories

| | University | Technical and Professional | Apprenticeship | Compulsory Education or Less |
|---|---|---|---|---|
| **Top Executives** | 1) top executives | | | |
| **Self-Employed** | 2) liberal professions | 3) self-employed | | |
| **Wage-Earners** | 4) intellectuals and managers | 5) middle employees | skilled:<br>6) non-manual<br>7) manual | 8) unskilled |

The significance of an educational attainment may vary according to the details and title of an occupation, which has been taken into account in this schema. For example, a particular employee could be classified as being part of the intellectual professions based on her degree of managerial responsibility, without necessarily having a university education.

*E. Treiman's Prestige Scale*

Treiman proposes a very general stratification model for modern complex societies based on occupational prestige ratings that are supposedly independent of locality and invariant to national, social, and cultural settings. His work in this area culminates in the construction and validation of the Standard International Occupational Prestige Scale. Using the four nested levels of the International Standard Classification of Occupations (ISCO), Treiman's occupational prestige scores for each occupation within an ISCO level are averaged to produce a score for occupational groups as summarized by ISCO.

The subjectively attributed prestige of a specific occupation is (a) linked to the privilege and power which individuals enjoy based on their occupational titles, (b) invariant across social and cultural groupings, and (c) similar across all complex modern societies.

The Treiman Prestige Scale differs from Wright and Goldthorpe's class schema not only in that it measures subjectively attributed prestige as an indicator of access to structural and functional power, but also because it explicitly models a prestige hierarchy. The prestige scores range between 0 (lowest prestige) and 100 (highest prestige; Treiman, 1977).

*F. The Cambridge Social Interaction and Stratification Scale (CAMSIS)*

The Cambridge Social Interaction and Stratification Scale (CAMSIS) is based on the idea that social structure can be expressed by the social distance between individuals, for instance through the co-occurrence of occupations that individuals hold and the relationships that they form with each other. Persons sharing a similar social position, in terms of social class or status group membership, are more likely to socially interact in

an equal way with members of the same group than with members of other groups. So, acquaintances, friends and marriage partners will all tend to be chosen much more frequently from within the same group than from without. [19].
CAMSIS has been developed initially from friendship networks and, subsequently, from cohabiting couples (Stewart, Prandy, and Blackburn 1980). For Switzerland, the Population Census of 1990 was used to examine the probability of co-occurrence of occupational titles between cohabiting couples.

In the simplest model, the distances between occupations of couples are calculated on the basis of the contribution of the cell toward the $\chi^2$ of a contingency table. The $\chi^2$ contribution for each cell is entered into a traditional correspondence analysis, which represents the best possible solution in a two-dimensional space. The first dimension represents the combination of occupations among couples who have the same occupational title (typical examples are couples, who both work together on a farm or a restaurant). The second dimension represents the social distance that is reflected in the (dis)similarity between couples' occupations. It should be added that the scores of a dimensional analysis do not have sociological significance in themselves but only in relation to each other. Here, the value allotted to each occupation (i.e. the score of the dimensional analysis) indicates its position on this hypothetical social axis and, consequently, its distance to others. Subsequently, each occupation of the 4-digit ISCO-88 classification is allotted a CAMSIS score. The current version adjusts for national variations and is sensitive to gender. Other dimensions can be easily accommodated (e.g. ethnicity, geographic region) in order to incorporate specific research interests and hypotheses, and to improve the correspondence between this measure and the social categories within their context.

See for more information Bergman et al. (2002) and Bergman and Joye (2001).

### *G. The Oesch Class Schema*

This schema tries to capture social stratification in modern service societies. More precisely, it aims at reflecting increasing occupational heterogeneity stemming from trends in the employment structure such as:

- Deindustrialization and service sector expansion
- Women's growing participation in paid employment
- Massive expansion in educational attainment and occupational upgrading

The schema's particularity lies in its focus on both hierarchical and horizontal class divisions. Hence, according to Oesch (2003; 2006a; 2006b), the salaried middle class should not be taken as a unitary grouping nor should the manual/non-manual divide be considered as the decisive division line.

Based on earlier contributions by John Goldthorpe, Gøsta Esping-Andersen, Hanspeter Kriesi and Walter Müller (Oesch, 2003), the schema combines two dimensions. A first *vertical* dimension separates class positions based on the advantage in their employment relationship; this distinction permits to distinguish occupations according to interlinked characteristics such as their marketable skills, their earnings or their mobility pro-

[19] For more details, see Bergman, Lambert, Prandy, and Joye (2002).

spects. A second *horizontal* dimension distinguishes occupations according to their predominating work logic. Four work logics are differentiated:

- an *interpersonal* logic, typical for service occupations based on face-to-face exchange (occupations in health care, education or welfare)
- a *technical* logic, where the work process is determined by technical production parameters (occupations in IT, craft or assembling)
- an *organizational* logic where primary orientation goes towards the employing organization (occupations in management, administration and the back-office):
- an *independent* logic where entrepreneurial principles of self-employed dominate (entrepreneurs, self-employed professionals, shopkeepers and farmers)

The schema's central argument is that depending on whether an occupation involves the face-to-face attendance to people's personal demands, the deployment of technical expertise and craft, or the administration of organizational power, the work logic and primary orientation differ in fundamental ways. Hence, the schema has been developed, among others, to come to grips with changes in class voting (Oesch, 2008).

Both a 16-class and 8-class version of the schema are available. Depending on the research question under study, the detailed or simplified version may be of greater use. The syntax to construct the schema with the SHP can be found at: http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/syntaxes-2/diverses/.

*6.3.4 Professional integration (PAUG$$R4)*

Paugam's typology is based on a distinction between conditions of employment and conditions of work. The typology distinguishes four types of professional integration (see Paugam, 2000). Secure integration ('intégration assurée') is defined as the combination of job stability and quality of work measured objectively and subjectively. Three forms of integration deviate from this model: *insecure integration* ('intégration incertaine') is the result of unstable job but good working conditions and satisfaction at work; *constrained integration* ('intégration laborieuse') is the product of a stable job, but with work constraints leading to dissatisfaction; and *disqualifying integration* ('intégration disqualifiante') corresponds to the combination of job instability and poor working conditions (Paugam, 2000).

*6.3.5 Income*

Respondents are asked about various income sources and total income both in the individual and in the household questionnaire. They are free to report gross or net amounts (after deduction of social security contributions) and to report monthly or annual income. Based on these questions, variables on yearly income amounts are constructed. Both net and gross incomes are constructed using standard assumptions on social security contributions. If respondents have indicated a monthly income, annual income is calculated using information from the number of months the respondent has received this income and from the activity calendar. All constructed variables have passed a series of (manual) plausibility checks. These checks involve typing errors, unplausibly high income increases or decreases with respect to the last wave, extreme income, inconsistencies between the sum of income sources and total income and inconsistencies between individual and household income. Details on income construction and plausibility

checks are described in the documentation “Collection, construction and plausibility checks of Income Data in the Swiss Household Panel” (seehttp://forscenter.ch/en/our-surveys/swiss-household-panel/documentationfaq/methods/).

*Individual income*

Table 6.3.10: List of constructed income variables of individuals

| Variable | Gross/net | Description |
|---|---|---|
| | I$$EMPYG gross<br>I$$EMPYN net (social security contributions deducted) | Income from employment: annual amount<br>Takes account of 13th and 14th month salary, bonuses and gratifications . |
| | I$$INDYG gross<br>I$$INDYN net (social security contributions deducted) | Income from self-employment: annual amount<br>Takes account of 13th and 14th month salary, bonuses and gratifications if applicable . |
| | I$$EMPMG gross<br>I$$EMPMN, net (social security contributions deducted) | Income from employment: monthly amount |
| | I$$INDMG gross<br>I$$INDMN net (social security contributions deducted) | Income from self-employment: monthly amount |
| I$$OASIY | | State pension for old-age (first pillar), widow(er)s or orphans: annual amount<br>Includes additional benefits. |
| $$AIY | | Disability pension: annual amount<br>Includes additional benefits. |
| I$$PENY | | Income from pension schemes (second pillar old-age pension): annual amount<br>Includes additional benefits. |
| I$$UNEY | | Income from unemployment social insurance: annual amount |
| I$$WELY | | Income from welfare benefits (social assistance): annual amount |
| I$$GRAY | | Income from scholarships, grants: annual amount<br>Income from private or public institution |
| I$$INSY | | Income from any another private or public institution: annual amount |
| I$$FAMY | | Family or child allowances: annual amount<br>Might additionally be included in income from employment |
| I$$PNHY | | Payments received from individuals not in household: annual amount |
| I$$PIHY | | Payments received from individuals in household: annual amount |
| I$$OSY | | Other income: annual amount<br>Might include 3rd pillar, inheritance, income from capital, such as income from wealth, letting, sub-letting |
| | I$$PTOTG, gross<br>I$$PTOTN, net (social security contributions on employment income deducted) | Yearly total personal income: annual amount<br>In most cases, total income has been calculated by adding the different income sources. In case of non-response in any of the income sources (and in some other cases in waves 1 to 5), total income refers to a global assessment of income.<br>Amounts of income sources which represent one-off payments over 12’000 CHF, are not considered in total income. |
| | I$$WYG, gross<br>I$$WYN, net (social security contributions deduct- | Income from employment or self-employment: annual amount<br>Takes account of 13th and 14th month salary, bonuses or gratifications if applicable . |

| | | |
|---|---|---|
| | ed) | From 2002 on: sum of I$$EMPY, I$$INDY |
| | I$$WMG, gross<br>I$$WMN, net | Income from employment or self-employment: monthly amount (see www.swisspanel.ch) |
| I$$STPY | | Social public transfers: annual amount.<br>From 2002 on: sum of I$$UNEY, I$$WELY, I$$GRAY, I$$INSY |
| I$$STFY | | Income from private persons (informal transfers): annual amount<br>From 2002 on: sum of I$$PNHY, I$$PIHY |
| I$$AVSY | | Income from old age or disability pension: annual amount<br>From 2002 on: sum of I$$OASIY, I$$AIY, I$$PENY |

The questions on income have changed over the duration of the panel (cf. Table 6.3.11). With the exception of family allowances (only asked from 2004 onward) as well as old-age pension and other income sources in 1999 (old-age pension was not asked in 1999), these changes should not influence comparisons across waves. The variables collected from 1999-2001 can be constructed for all years by aggregating different income sources as shown in the table.

Table 6.3.11 Collection of individual income, by wave

| 1999 | 2000-2001 | 2002-2003 | from 2004 |
|---|---|---|---|
| I$$WY | I$$WY | I$$EMPY | I$$EMPY |
| | | I$$INDY | I$$INDY |
| - | I$$AVSY | I$$OASIY | I$$OASIY |
| | | $$AIY | $$AIY |
| | | I$$PENY | I$$PENY |
| I$$STPY | I$$STPY | I$$UNEY | I$$UNEY |
| | | I$$WELY | I$$WELY |
| | | I$$GRAY | I$$GRAY |
| | | I$$INSY | I$$INSY |
| - | - | - | I$$FAMY |
| I$$STFY | I$$STFY | I$$PIHY | I$$PIHY |
| | | I$$PNHY | I$$PNHY |
| I$$OSY | I$$OSY | I$$OSY | I$$OSY |

*Household income*

There are two different ways of constructing household income. Firstly, in the household questionnaire, reference persons are asked to estimate total household income (sum of all household members). Secondly, in the individual questionnaire, household members (from 14 years of age) are asked about their personal income. Total individual income amounts (corrected for within-household transfers) are then added to calculate household income. The constructed variables on household income (listed below) represent the sum of individual income in two cases: either if all individuals have answered the income questions in the individual questionnaire or if the sum of individual income is larger than the household-income from the household questionnaire. In the other cases, household income from the household interview is taken. Only if household income is based on individual income, adjustments are made for gross and net income.

To better assess the income situation of a household, equivalised household income takes account of the household size and household composition by converting household income into income of one-person households. To compute equivalised household income, the household income is divided by an equivalence scale. Two different equivalence scales are used in the SHP. Firstly, the modified OECD scale (variables I$$EQON

and I$$EQOG) attributes a weight of 1 to the first adult, a weight of 0.5 to all other household members from 14 years on, and a weight of 0.3 to children up to 14 years. The sum of these weights gives the modified OECD scale. Secondly, the SKOS equivalence scale (Swiss Conference of social assistance) (variables I$$EQSN and I$$EQSG) attributes a weight of 1 to a 1-person household, 1.53 to a two-person household, 1.86 to a three-person household, 2.14 to a four-person household, 2.42 to a five-person household, 2.70 to a six-person household, 2.98 to a seven-person household and increases by 0.28 to each additional person.

Table 6.3.12 List of constructed income variables of households

| Variable | Gross/net | Description |
|---|---|---|
| | I$$HTYG, gross<br>I$$HTYN, net<br>(social security taken into account where possible) | Yearly income from all members<br>Taxes not deducted |
| | I$$EQSG, gross<br>I$$EQON, net<br>(social security taken into account where possible) | Yearly household income, equivalised according to SKOS scale 1998 (see www.swisspanel.ch).<br>Taxes not deducted |
| | I$$EQOG, gross<br>I$$EQON, net<br>(social security taken into account where possible) | Yearly household income, equivalised according to modified OECD scale.<br>Taxes not deducted |
| I$$HTAX | | Simulated direct taxes at the municipal, cantonal and federal level |

*Additional income variables*

The constructed annualised income variables of the SHP user files have been imputed if the amount was missing (don't know, no answer, implausible value). These imputed values can be downloaded from http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/telecharger-les-donnees/.

The SHP cross-national equivalent file (CNEF) contains income sources defined slightly differently than in the SHP user file. The CNEF-variables – with the exception of professional income – report income on the household level. Missing values have been imputed. The CNEF-variables can be downloaded from http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/cnef-2/. To access CNEF-variables of other household panels, see the CNEF-homepage: http://cnef.ehe.osu.edu/

- Original responses on the questionnaire are available from the SHP-team upon request (email to ursina.kuhn@fors.unil.ch).

*Simulated taxes*

The variable I$$HTAX simulates the direct taxes paid by the household at the municipal, cantonal and federal level. To assign the percentage of the household income which has to be paid as taxes, we use tax levels in municipalities published by the Swiss Federal Tax administration and take account of household specific deductions that can be applied to the income. Taxes are calculated at the level of tax units (individuals or married couples) and then aggregated to the household level. The detailed procedures to simu-

late taxes are described in SHP working paper 4_09 “Tax simulation in the SHP” (http://aresoas.unil.ch/workingpapers/WP4_09.pdf).

*6.3.6 Geographical information*

In addition to the region (REGION$$, 7 regions) and the canton (CANTON$$, 26 cantons) in which the household resides, two community typologies are constructed. This variable is based on the political municipality codes (provided by the Swiss Federal Statistical Office, see Schuler, Dessemontet and Joye 2005, 116f), and recoded into 22 codes based on the municipality in which the household is located (‘communes’ or ‘Gemeinden’). An aggregated version of this variable in 9 categories is provided as well. Table 6.3.13 provides the names and labels of these variables as well as how COM1_$$ is aggregated into COM2_$$.

Table 6.3.13 Coding of the community typology variables

| | **COM1_$$** | | **COM2_$$** |
|---|---|---|---|
| 1 | Great urban centres | 1 | Centres (1,2,3) |
| 2 | Median sized urban centres | | |
| 3 | Small centres | | |
| 4 | Centre of peripheral region | | |
| 5 | Wealthy communes | 3 | Wealthy communes (5) |
| 6 | Tourist communes | 5 | Tourist communes (6,7) |
| 7 | Semi-tourist commune | | |
| 8 | Communes with homes and asylums | | |
| 9 | Labour/job communes in large central regions | 2 | Suburban communes (9,10,12,13) |
| 10 | Suburban residential communes in large central regions | | |
| 11 | Peripheral urban communes in large central regions | 4 | Peripheral urban communes (11,14) |
| 12 | Labour/job communes outside large central regions | | |
| 13 | Suburban residential communes outside large central | | |
| 14 | Peripheral urban communes outside large central regions | | |
| 15 | Net immigration communes, moderate or high proportion | 7 | Rural commuter communes (15,16) |
| 16 | Native resident communes, moderate or high proportion | | |
| 17 | Communes with industrial and tertiary sector employment | 6 | Industrial and tertiary sector communes (4,8,17,18) |
| 18 | Communes with industrial employment | | |
| 19 | Communes with agricultural and industrial employment | 8 | Mixed agricultural communes (19,20) |
| 20 | Communes with agricultural and tertiary sector employment | | |
| 21 | Communes with agricultural employment population | 9 | Peripheral agricultural communes (21,22) |
| 22 | Communes with strongly shrinking population | | |

The municipality codes themselves are not included in the user file to guarantee the anonymity of the respondents. Under certain conditions are the codes available for users of the data. This requires special authorization and is only possible when anonymity of the households can be guaranteed.

Other constructed variables in the household file related to socio-geographical characteristics of the household are HHMOVE$$ (whether the household moved since the last interview).

Table 6.3.14 Household moved since last interview (HHMOVE$$)

| Variable | Label | Constructed from |
|---|---|---|
| HHMOVE$$ | moved since last interview | grid and M.I.S. Trend information |

## *6.4 References for psychosocial variables*[20]

Several psychological dimensions are assessed in the SHP. Some questions are asked every wave, whereas other questions are asked regularly but not each year. This section gives information about the availability of psychological variables.

*6.4.1 Subjective well-being indicators and scales*

The concept of subjective well-being (SWB) is composed of two dimensions: a cognitive dimension which includes the participant's evaluation of his/her life in general, or of a particular important domain of life (for example health, professional life, financial situation) and an affective dimension which considers positive and negative affects such as joy, hope, optimism, worries, anxiety and anger (Diener 2000; Diener, Suh, Lucas, and Smith 1999).

The SHP includes one indicator that allows the measurement of general satisfaction with life. Additionally, there are different indicators that measure a wide range of domain specific aspects of life satisfaction. Finally, measures of affective well-being such as positive and negative affect are available.

Below our indicators of SWB are listed:

1. A general measure of SWB which reflects the satisfaction with life in general.

Table 6.4.1 Satisfaction with life in general

| Variable | Label | Available in waves |
|---|---|---|
| P$$C44 | Satisfaction with life in general | W02 – W15 |

In addition, four items from the life satisfaction scale from Diener et al. (1985) was included in 2012, wave 14.

[20] For an exact wording of the questions presented in this section we refer to http://forscenter.ch/fr/our-surveys/swiss-household-panel/documentationfaq/questionnaires-pdf/.

Table 6.4.2 Four life satisfaction items

| Variables | Label | Available in waves |
|---|---|---|
| P$$C100 | LS: Life close to ideal | W14 |
| P$$C101 | LS: Excellent life conditions | W14 |
| P$$C102 | LS: Having gotten important things | W14 |
| P$$C103 | LS: Not changing anything | W14 |

In wave 14 the psychometric properties of the Life satisfaction items (combination of the items in table 6.4.1 and the one in table 6.4.2): Cronbach's alpha: 0.82.

2. A general measure of life satisfaction concerning health.

Table 6.4.3 Satisfaction with health

| Variable | Label | Available in waves |
|---|---|---|
| P$$C02 | Satisfaction with health status | W01 - W15 |

3. Five items assess the satisfaction with the educational environment and its quality.

Table 6.4.4 Satisfaction with the educational environment

| Variable | Label | Available in waves |
|---|---|---|
| P$$YTH01 | Satisfaction with current studies | W03 - W15 |
| P$$YTH05 | Satisfaction with things learned during studies | W03 – W15 |
| P$$YTH06 | Satisfaction with relationship with the teaching staff | W03 – W15 |
| P$$YTH07 | Satisfaction with the atmosphere with fellow pupils/students | W03 – W15 |
| P$$YTH08 | Satisfaction with the support from parents | W03 – W15 |

4. Two items assess satisfaction with the overall financial situation.

Table 6.4.5 Satisfaction with financial situation

| Variable | Label | |
|---|---|---|
| P$$W92 | Satisfaction with income | W01 – W 14 |
| P$$I01 | Satisfaction with financial situation | W01 – W 14 |

5. Satisfaction with working conditions is measured with five items.

Table 6.4.6 Satisfaction with working condition

| Variable | Label | Available in waves |
|---|---|---|
| P$$W93 | Satisfaction with working conditions | W01 - W15 |
| P$$W94 | Satisfaction with working atmosphere | W01 - W15 |
| P$$W229 | Satisfaction with the level of interest in tasks | W01 - W15 |
| P$$W230 | Satisfaction with the amount of work | W01 - W15 |
| P$$W228 | Satisfaction with job in general | W01 - W15 |

6. Four items assess the perception of the social environment of the individual.

Table 6.4.7 Satisfaction with living arrangements and personal relationships

| Variable | Label | Available in waves |
|---|---|---|
| P$$F01 | Satisfaction with living alone | W01 - W15 |
| P$$F02 | Satisfaction with living together | W01 - W15 |
| P$$F04 | Satisfaction with way housework is shared | W01 - W15 |
| P$$QL04 | Satisfaction with personal relationships | W03 - W15 |

7. Two items measure the satisfaction with leisure time

Table 6.4.8 Satisfaction with leisure

| Variable | Label | Available in waves |
|---|---|---|
| P$$A05 | Satisfaction with free time | W01 - W15 |
| P$$A06 | Satisfaction with leisure activities | W01 - W15 |

8. One item takes account of the satisfaction with the political system and particularly the perception of democracy.

Table 6.4.9 Satisfaction with democracy

| Variable | Label | Available in waves |
|---|---|---|
| P$$P02 | Satisfaction with democracy | W01 - W11 /W13 |

The second dimension of SWB – the affective dimension – is also present in the SHP. Generally, affective traits are conceptualized as two dimensions of mood (Watson, Clark, and Tellegen 1988): positive affect (PA), which groups together emotions such as joy, hope, and optimism, and negative affect (NA), which groups together a set of negative emotions such as anxiety, irritation, and depression. (Scherer, Wranik, Sangsue, Tran, and Scherer 2004).

The SHP contains one item assessing a very general negative emotional state.

Table 6.4.10 Negative feelings

| Variable | Label | Available in waves |
|---|---|---|
| | Do you often have negative feelings | |
| P$$C17 | … depression, blues, anxiety | W01 – W15 |

The construct of positive feelings is measured with an item which assesses a feeling of energy and strength as well as general expectancies concerning future events.

Table 6.4.11 Positive feelings

| Variable | Label | Available in waves |
|---|---|---|
| | Are you often | |
| P$$C18 | … full of strength, energy and optimism | W02 – W15 |

Additionally, since 2006 the frequency of four of the most important emotional traits is considered (Scherer, Wranik, Sangsue, Tran, and Scherer 2004).

Table 6.4.12 Positive and negative affects

| Variable | Label | Available in waves |
|---|---|---|
| | How frequently do you generally experience the following emotions | |
| P$$C47 | … joy | W08 – W15 |
| P$$C48 | … anger | W08 – W15 |
| P$$C49 | … sadness | W08 – W15 |
| P$$C50 | … worry | W08 – W15 |

Psychometric properties of the six items emotional dimension: Cronbach's alpha: 0.75.

*6.4.2 Personality traits: Big Five Inventory – 10 (BFI-10)*

This ten item scale is designed to provide information about the differences between individuals on five principal personality dimensions (Extraversion, Neuroticism, Agreeableness, Conscientiousness, and Openness to Experience). Each item goes from zero "disagree strongly" to ten "agree strongly" and measure how an individual positions himself relative to a list of ten statements.

This scale, developed by Rammstedt and John (2007), is an abbreviated version of the 44 items Big Five Inventory (BFI-44). The Big Five Inventory includes two items per personality trait. Commonly a trait is defined as temporally stable, heritable - or at least in part - and considered as universal. Rammstedt and John (2007) have assessed the psychometric properties of this short scale.

For a general overview about the theoretical assumption behind this personality traits scale, John, Naumann and Soto (2008) give information about the history and the construction of the Big Five inventory taxonomy. For the general five factor theory see also McCrea and Costa (2003). Srivastava, Gosling and Potter (2003) provide information on the relative stability of personality traits during adulthood and put forward that not all the personality traits are equally stable. In the SHP, the BFI-10 is collected once, at the first interview.

An examination of the data collected in 2009 shows that the Big Five-10 performed poorly in the SHP. Correlations between the items of the corresponding factors were relatively low ranging from 0.07 for Agreeableness to 0.39 for Extraversion. Furthermore, factor analyses showed that only three out of the five personality dimensions could be reproduced (Extraversion, Neuroticism and Openness to Experience). Therefore, we recommend being very cautious when using the Big Five-10 (Ryser & Lebert 2014). An alternative measure of the Big Five consisting of 15 items is currently discussed and may be implemented in wave 17 in 2015.

Table 6.4.13 Big Five-10

| Variable | Label | Available in wave[1] |
|---|---|---|
| | I see myself as someone who | |
| P$$C60 | … is reserved. | W 11 – |
| P$$C61 | ... is generally trusting. | W 11 – |
| P$$C62 | ... does a thorough job . | W 11 – |
| P$$C63 | ... is relaxed, handles stress well. | W 11 – |
| P$$C64 | ... has an active imagination. | W 11 – |
| P$$C65 | ... is outgoing, sociable. | W 11 – |
| P$$C66 | ... tends to find fault with others. | W 11 – |
| P$$C67 | ... tends to be lazy. | W 11 – |
| P$$C68 | ... gets nervous easily. | W 11 – |
| P$$C69 | ... has artistic interests | W 11 – |

*Note:*
[1]) Only asked after W11 if this was the respondents' first interview.
Scoring the BFI-10 scales:
P$$C60, P$$C66, P$$C67. and P$$C68 are reversed in valence items.
Each trait is measured with two items:
Extraversion: P$$C60-R - P$$C65; Agreeableness: P$$C61 - P$$C66-R; Conscientiousness: P$$C62 - P$$C67-R; Neuroticism: P$$C63 - P$$C68-R; Openness: P$$C64 - P$$C69.
R means reversed item.

### *6.4.3 Self perception and sense of control*

Six items measure a very general personal perception of the self. Some items measure in how far respondents believe that their destiny is controlled by themselves and their own decisions or by external forces over which they do not have any power. Individuals who believe more strongly that they control their own destiny are more likely to develop a feeling of self-efficacy.

The items are rated on an eleven-point scale from 0 "I completely disagree" to 10 "I completely agree". The first four questions are adapted by Levy, Joye, Guye and Kaufmann (p. 510; 1997) from Strodtbeck (1958). These items are directly related to the perception of the level of self-mastery and self-efficacy toward the environment. The last two items come from the self-esteem scale by Rosenberg (1965) and reflect the appraisal of one's own worth. These questions are asked at regular intervals and were included for the second time in wave 14.

Table 6.4.14 Self perception

| Variable | Label | Available in waves |
|---|---|---|
| P$$C70 | Self-Perception : incapacity to make plans because of unpredictability | W 11 /W14 |
| P$$C71 | Self-Perception : little influence on life events | W 11 /W14 |
| P$$C72 | Self-Perception : capacity to overcome unexpected problems | W 11 /W14 |
| P$$C73 | Self-Perception : capacity to choose between two possibilities | W 11 /W14 |
| P$$C74 | Self-Perception : feeling of uselessness | W 11 /W14 |
| P$$C75 | Self-Perception : feeling of selfsatisfaction | W 11 /W14 |

*Note:* P09C72 P09C73 and P09C75 are reversed in valence.

In 2012, wave 14, items related to the "Sense of control" were introduced in the SHP.

Table 6.4.15 Sense of control

| Variable | Label | Available in waves |
|---|---|---|
| P12C104 | Sense of control: Doing everything set in my mind | W14 |
| P12C105 | Sense of control: Find a way to succeed | W14 |
| P12C106 | Sense of control: What I want is in my hands | W14 |
| P12C107 | Sense of control: What will happen depends on me | W14 |
| Perceived constraints | | W14 |
| P12C108 | Sense of control: Others determine what I can do | W14 |
| P12C109 | Sense of control: Feeling of being pushed in my life | W14 |

Three items P$$C106, P$$C107, and P$$C109 come from Pearlin and Schooler (1978). Three items P$$C104, P$$C105 and P$$C108 come from Lachman and Weaver (1998).

A scale score can be constructed by calculating the mean of the 12 items keeping in mind that some items are reversed in valence. The psychometric properties of the 12 items of the self-perception and control dimension: Cronbach's alpha: 0.74.

*6.4.4 Worries*

A worries scale adapted from Stöber and Joormann (2001) was included in the SHP in wave 14.

Table 6.4.16 Worries

| Variable | Label | Available in waves |
|---|---|---|
| P$$C110 | Worries: Achieving my ambitions | W14 |
| P$$C111 | Worries: Not keeping my workload up to date | W14 |
| P$$C112 | Worries: Being not able to afford things | W14 |
| P$$C113 | Worries: Feeling insecure | W14 |
| P$$C114 | Worries: Cannot afford to pay bills | W14 |
| P$$C115 | Worries: Leaving the work unfinished | W14 |
| P$$C116 | Worries: Lacking of confidence | W14 |
| P$$C117 | Worries: Being unattractive | W14 |
| P$$C118 | Worries: Losing close friends | W14 |
| P$$C119 | Worries: Have not achieving much | W14 |

Psychometric properties of the “Worries scale”: Cronbach’s alpha: 0.91.

*6.4.5 Important things in life*

Table 6.4.17 Important things in life

| Variable | Label | Available in waves |
|---|---|---|
| P12C120 | Important things in life: buy things | W14 |
| P12C121 | Important things in life: helping other people | W14 |
| P12C122 | Important things in life: self-actualization | W14 |
| P12C123 | Important things in life: success in job | W14 |
| P12C124 | Important things in life: being owner of house or apartment | W14 |
| P12C125 | Important things in life: good partnership | W14 |
| P12C126 | Important things in life: having children | W14 |
| P12C127 | Important things in life: social activities | W14 |
| P12C128 | Important things in life: travelling | W14 |

Psychometric properties of the “Important things” dimension: Cronbach’s alpha: 0.63

*6.4.6 Gender role attitudes*

A number of items measure gender role attitudes and perceived equality between men and women. Both direct and indirect measures of attitudes are present in the SHP with measures at the individual and at the intergroup level.

1. One item assesses the attitude toward traditional gender roles legitimacy in society.

Table 5.4.18 Opinion on family

| Variable | Label | Available in waves |
|---|---|---|
| P$$D92 | Opinion on family: child suffers with working mother | W04 - W 13 |

2. One item takes into account if an individual perceives work as a possibility to remain independent.

Table 5.4.19 Opinion on family

| Variable | Label | Available in waves |
|---|---|---|
| P$$D91 | Job preserves independence | W04 - W 13 |

3. Additionally, the data include an item measured annually from 2002 till 2005 on how individuals perceive childbearing within cohabitation.

Table 5.4.20 Opinion on family

| Variable | Label | Available in waves |
|---|---|---|
| P$$D93 | A child develops equally well whether his/her parents are married or not. | W 04 - W 07 |

4. Two items are adapted from Roux (1999). These items measure the perception of inequality at two levels: at the individual level which concerns the private sphere and at the intergroup level concerning society at large. This scale is important because it allows making a distinction between two kinds of discrimination: in this sense this scale gives information whether it is the group and/or the individual which is perceived as a target for discrimination.

Table 6.4.21 Equality

| Variable | Question | Available in waves |
|---|---|---|
| P$$P20 | Do you have the feeling that in Switzerland women are penalized compared with men in certain areas? | W02-W 11 /W13 |
| P$$P21 | Do you, in your everyday life, feel penalized compared with the opposite sex? | W02-W 11 /W13 |

5. Measuring attitudes toward measures promoting gender equality is another way to measure gender role attitudes. Such a scale is much more subtle and provides an indirect measure of gender role attitudes. Two items assess the propensity to behave in a way to improve equality between men and women. One item is a global measure at the group level and one item measures the possibility to act at the individual level. These items are inspired by the neo-sexism scale (Tougas, Brown, and Joly 1995), a scale which assesses the attitude toward gender roles in society instead of measuring attitudes toward women directly. Such measures are supposed to be less threatening compared to direct measures and emphasizes attitudes that are generally hidden.

Table 6.4.22 In favour of equality measures

| Variable | Question | Available in waves |
|---|---|---|
| P$$P22 | Are you in favour of Switzerland taking more steps to ensure the promotion of women? | W02-W11/W13 |
| P$$P23 | In your own relationships with the opposite sex, does it seem possible to you that something can be done to increase equality between men and women? | W02 - W 11 |

*6.4.7 Risk aversion scale*

A single item, rated on an eleven point scale from 0 "avoid taking risks" to 10 "fully prepared to take risks", assesses the global individual attitude toward taking risks in general. For more information, Grund and Sliwka (2006) give a general overview of the theoretical background of this scale.

Table 6.4.23 Risk aversion

| Variable | Question | Available in waves |
|---|---|---|
| P$$P48 | Are you generally a person who is fully prepared to take risk or do you try to avoid taking risks? | W 11 – W 12 |

## 6.5 Main missing value conventions

The following missing value labels are used:

-1 does not know
-2 no answer
-3 inapplicable. This means either
  a) the specific question was not asked because it was not applicable to the respondent
  b) the respondent did not participate in this particular wave
  c) the entire household did not respond/was not contacted
-7 filter error (a question should have been asked but was not)
-8 other error

## 6.6 Imputation procedures

Apart from the consistency checks and corrections (see 5.3) no values are changed or imputed, with the exception of income variables (see 6.3.5).

## 6.7 Combining data files

Table 6.7.1 shows the identification numbers that are available in the different data files. The personal ID (idpers) can be found in all files on the individual level, always referring to the same individual. The interviewer ID is available in the interviewer files (see 6.1.7) and the annual individual and household files.

As the composition of households can change over time, their identification number is wave specific.

Identification numbers of parents and spouses refer to their personal ID. For example, to match parents and children, one can attach the info of the parent to the info of the child, by matching idmoth$$ and idfath$$ (idmoth__ and idfath__ in Stata and SAS) to idpers.

To combine information from the household reference person with the household, refper$$ needs to be matched to idpers in the individual file. To add information from the partner to this file rpspou$$ needs to be matched to idpers.

Table 6.7.1 Identification numbers

| variable | in files[a] | description |
|---|---|---|
| idint[b] | P, H, V | ID of interviewer |
| Idpers | P, MP, SO, CA, LJ, BH, BV | ID of person |
| Idhous$$ | P, H, MP, MH, BH | ID of household |
| Idfath$$ | MP | ID of father |
| Idmoth$$ | MP | ID of mother |
| Idspou$$ | P | ID of partner |
| Refper$$ | H, MH | ID of reference person in hld |
| Rpspou$$ | H | ID of partner of reference person |

[a]) P individual questionnaire (wave specific)
H household questionnaire (wave specific)
MP master file individuals
MH master file households
V interviewer file
SO social origin
CA activity calendar
LJ last job
BH biographical file (horizontal)
BV biographical file (vertical)

[b]) **Attention!**
The values of the variable "idint" in the Interviewer data files have been coded in order to protect the identity of the Interviewers. Consequently, the merging of the Interviewer-data with the Household and Individual level files is only possible after de-coding. Please contact Oliver Lipps for more details (oliver.lipps@fors.unil.ch).

On http://forscenter.ch/en/our-surveys/swiss-household-panel/datasupport-2/syntaxes-2/ there are examples of programming in SAS, SPSS and Stata of how to combine different files (such as matching respondents across waves, matching respondents to households, matching couples, etc.).

## *6.8 Changing the language of the variable and value labels*

Variables and values labels are available for each data file in French, German, Italian and English. The files containing the syntax are:

- Variable_labels_SHP_$WAVE$_$QUEST$_$LANGUAGE$.txt
- Value_labels_SHP_$WAVE$_$QUEST$_$LANGUAGE$.txt

$WAVE$ is to be replaced by:
W1 = Wave 1
W2 = Wave 2
W3 = Wave 3
W4 = Wave 4
W5 = Wave 5
W6 = Wave 6
W7 = Wave 7
W8 = Wave 8
W9 = Wave 9
W10= Wave 10

W11= Wave 11
W12= Wave 12
W13= Wave 13
W14= Wave 14
W15= Wave 15
WA = Waves ALL (modules CA, LJ, MP, MH, OS)

$QUEST$ is to be replaced by:
P = Individual
H = Household
X = Proxy
CA = Activities calendar
LJ = Last Job
MP = Individual Masterfile
MH = Household Masterfile
OS = Social Origin

$LANGUAGE$ is to be replaced by:
E = English
F = Français
D = Deutch
I = Italiano

For **SPSS** labels
To label a SPSS data file, open the files located in the '\LABELS\SPSS\$WAVE$\$LANGUAGE$\' directory in a syntax editor and run the syntax.

For **Stata** labels
To label a Stata data file, open the files located in the '\LABELS\STATA\$WAVE$\$LANGUAGE$\' directory in a do-file editor and run the syntax. Note that all Stata file names variable names use lower case letters.

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# Appendix A List of cantons in Switzerland

| | |
|---|---|
| AG | Aargau |
| AR | Appenzell Ausserrhoden |
| AI | Appenzell Innerrrhoden |
| BS | Basel-Stadt |
| BL | Basel-Landschaft |
| BE | Bern |
| FR | Fribourg |
| GE | Geneva |
| GL | Glarus |
| GR | Graubünden |
| JU | Jura |
| LU | Lucerne |
| NE | Neuchâtel |
| NW | Nidwalden |
| OW | Obwalden |
| SH | Schaffhausen |
| SZ | Schwyz |
| SO | Solothurn |
| SG | St. Gallen |
| TG | Thurgau |
| TI | Ticino |
| UR | Uri |
| VS | Valais |
| VD | Vaud |
| ZG | Zug |
| ZH | Zurich |

# Appendix B Participation in the Swiss Household Panel

*Table 1: Participation in the "Living in Switzerland Panel Survey" 1999-2013 (SHP_I)*

| **Number of participating units** | **SHP _I 1999 (w1)** | **SHP _I 2000 (w2)** | **SHP _I 2001 (w3)** | **SHP _I 2002 (w4)** | **SHP _I 2003 (w5)** | **SHP _I 2004 (w6)** | **SHP _I 2005 (w7)** | **SHP _I 2006 (w8)** | **SHP _I 2007 (w9)** | **SHP _I 2008 (w10)** | **SHP _I 2009 (w11)** | **SHP _I 2010 (w12)** | **SHP _I 2011 (w13)** | **SHP _I 2012 (w14)** | **SHP _I 2013 (w15)** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Households with grids completed | 5,074 | 4,532 | 4,314 | 3,685 | 3,289 | 2,918 | 2,526 | 2,580 | 2,893 | 2,793 | 3,052 | 3,065 | 3,055 | 3,032 | 2,936 |
| **Household interview completed** | **5,074** | **4,425** | **4,139** | **3,582** | **3,227** | **2,837** | **2,457** | **2,537** | **2,817** | **2,718** | **2,930** | **2,985** | **2,977** | **2,968** | **2,881** |
| ***Persons living in participating households*** | 12,931 | 11,678 | 11,116 | 9,537 | 8,478 | 7,517 | 6,491 | 6,587 | 7,225 | 6,905 | 7,469 | 7,477 | 7,450 | 7,274 | 6,999 |
| Persons aged 14 years and older eligible for individual interviewing | 10,293 | 9,297 | 8,942 | 7,553 | 6,719 | 5,976 | 5,220 | 5,333 | 5,972 | 5,740 | 6,224 | 6,286 | 6,335 | 6,229 | 6,043 |
| **Personal interview completed** | **7,799** | **7,073** | **6,601** | **5,700** | **5,220** | **4,413** | **3,888** | **4,091** | **4,630** | **4,494** | **4,800** | **5,057** | **5,103** | **5,032** | **4,880** |
| Proxy Interviews [a] | 2,638 | 2,381 | 2,174 | 1,984 | 1,724 | 1,482 | 1,241 | 1,237 | 1,226 | 1,127 | 1,216 | 1,163 | 1,085 | 1,029 | 923 |
| Persons responding in current and all previous waves | ------ | 6,335 | 5,429 | 4,480 | 3,888 | 3'076 | 2,622 | 2,399 | 2,209 | 2,060 | 1,952 | 1,879 | 1,813 | 1,739 | 1,661 |
| Grid level net response rates [b] | 64% | 91% | 88% | 86% | 90% | 82% | 91% | 87% | 86% | 91% | 91% | 94% | 93% | 93% | 94% |
| Individual level net response rates [c] | 85% | 84% | 88% | 89% | 88% | 85% | 87% | 81% | 81% | 82% | 81% | 85% | 84% | 84% | 84% |

*Source:* Swiss Household Panel, 1999-2013 (http://www.swisspanel.ch/)

[a] The SHP proxy interviews include information about children under 14 years and adult persons unable to respond to the survey (old age, handicap, etc.); the SILC survey doesn't conduct proxy interviews regarding children.

[b] Referring to all gross households minus those with neutral problems (neutral problems: invalid telephone, etc.).

[c] Referring to all called individuals minus those with neutral problems (foreign language etc.).

***Note: SHP_I denotes the original households recruited in 1999.***

*Table 2: Participation in the "Living in Switzerland Panel Survey" 2004-2013 (SHP_II)*

| **Number of participating units** | **SHP_II 2004 (w1)** | **SHP_II 2005 (w2)** | **SHP_II 2006 (w3)** | **SHP _II 2007 (w4)** | **SHP _II 2008 (w5)** | **SHP _II 2009 (w6)** | **SHP _II 2010 (w7)** | **SHP _II 2011 (w8)** | **SHP _II 2012 (w9)** | **SHP _II 2013 (w10)** |
|---|---|---|---|---|---|---|---|---|---|---|
| Households with grids completed | 2,704 | 1,908 | 1,754 | 1.548 | 1663 | 1,540 | 1,609 | 1,561 | 1,561 | 1,531 |
| **Household interview completed** | **2,538** | **1,799** | **1,684** | **1.494** | **1546** | **1,476** | **1,557** | **1,520** | **1,493** | **1,488** |
| ***Persons living in participating households*** | 6,569 | 4,673 | 4,276 | 3,777 | 3984 | 3,686 | 3,855 | 3,728 | 3,696 | 3,576 |
| Persons aged 14 years and older eligible for individual interviewing | 5,376 | 3,845 | 3,500 | 3,123 | 3291 | 3,033 | 3,184 | 3,136 | 3,115 | 3,020 |
| **Personal interview completed** | **3,654** | **2,649** | **2,568** | **2,350** | **2410** | **2,309** | **2,489** | **2,481** | **2,414** | **2,327** |
| Proxy Interviews [a] | 1,117 | 772 | 745 | 639 | 647 | 624 | 655 | 572 | 565 | 544 |
| Persons responding in current and all previous waves | ------ | 2,395 | 1,930 | 1,601 | 1400 | 1,289 | 1,221 | 1,157 | 1,102 | 1,039 |
| Grid level net response rates [b] | 65% | 81% | 78% | 84% | 81% | 91% | 88% | 90% | 85% | 92% |
| Individual level net response rates [c] | 76% | 75% | 78% | 80% | 80% | 81% | 83% | 84% | 81% | 80% |

*Source:* Swiss Household Panel, 2004-2013 (http://www.swisspanel.ch/)

[a] The SHP proxy interviews include information about children under 14 years and adult persons unable to respond to the survey (old age, handicap, etc.); the SILC survey doesn't conduct proxy interviews regarding children.

[b] Referring to all gross households minus those with neutral problems (neutral problems: invalid telephone, etc.).

[c] Referring to all called individuals minus those with neutral problems (foreign language etc.).

***Note: SHP_II stands for the newly recruited SHP households in 2004.***

Table 3 *Participation in the "Living in Switzerland Panel Survey" 2013 (SHP_III)*

| **Number of participating units** | **SHP_III 2013 (w1)** |
|---|---|
| Households with grids completed | 4,066 |
| **Household interview completed** | **3,989** |
| *Persons living in participating households* | 9,885 |
| Persons aged 14 years and older eligible for individual interviewing | 7,910 |
| **Personal interview completed**[a] | **6,090** |
| Grid level net response rates [b] | 60% |
| Individual level net response rates [c] | 81% |

*Source:* Swiss Household Panel, 2013 (http://www.swisspanel.ch/)

[a] In wave 1 of SHP_III only respondents aged 16 or older completed the biographical questionnaire.

[b] Referring to all gross households minus those with neutral problems (neutral problems: invalid telephone, etc.).

[c] Referring to all contacted individuals minus those with neutral problems (foreign language etc.).

# Appendix C Attrition in the SHP_I & SHP_II

Tables 1 and 2 below present demographic characteristics and social involvement attitudes and behaviour of both samples of the SHP for respondents with different response patterns. A selection is made of respondents who have participated in an individual interview at least once, and who have not left the panel (i.e. not deceased, institutionalized or out of the country)[21]. A distinction is made between respondents who are interviewed in every wave, those who are interviewed irregularly, and those who dropped out of the panel (this implies the respondent was not interviewed in the last three waves). Note that calculations are based on unweighted data. Significant differences are tested by calculating Cramers' V for all the categorical variables and by t-tests for the continuous variables and the variables measured on an 11-point scale.

Table 1 Demographic characteristics and social involvement attitudes and behaviour by response pattern (SHP I, 1999-2013)

| | **Always responding n = 2550** | **Irregularly responding n = 3176** | **Dropped out n = 5140** |
|---|---|---|---|
| **Sex (%)** | | | |
| men | 42.4% | 46.9% | 47.5% |
| women | 57.6% | 53.1% | 52.5% |
| **Age (%)** | | | |
| 14 to 19 | 23.9% | 24.8% | 21.6% |
| 20 to 29 | 11.2% | 13.7% | 19.3% |
| 30 to 39 | 22.2% | 19.4% | 19.2% |
| 40 to 49 | 17.1% | 18.2% | 16.2% |
| 50 to 59 | 14.6% | 13.6% | 10.5% |
| 60 + | 11.1% | 10.3% | 13.3% |
| **Education (%)** | | | |
| compulsory school | 32.2% | 35.9% | 35.2% |
| upper secondary level (vocational) | 32.8% | 36.3% | 37.4% |
| upper secondary level (matura) | 10.0% | 9.1% | 10.2% |
| tertiary level (vocational) | 12.0% | 10.3% | 8.8% |
| tertiary level (university) | 13.0% | 8.5% | 8.4% |
| | | | |
| **Swiss nationality (%)** | 94.1% | 92.7% | 87.7% |
| **Region[a] (%)** | | | |
| Lake Geneva | 17.0% | 17.8% | 17.7% |
| Middleland | 27.0% | 25.5% | 24.6% |
| North-west Switzerland | 15.0% | 14.8% | 13.8% |
| Zurich | 17.2% | 15.4% | 16.5% |
| East Switzerland | 10.0% | 13.3% | 14.5% |

[21] Following a matching procedure with the Swiss National Cohort (a database containing all residents in Switzerland matched with the mortality register, see Spoerri et al, 2010) we were able to identify additional deceased respondents who, until now, were erroneously included in the "dropped out" group. In wave 15 of the SHP_I sample 331sample members were identified as deceased and 161 sample members as having left the country. For the SHP_II the numbers were 107 and 67 respectively.

| | | | |
|---|---|---|---|
| Central Switzerland | 10.0% | 9.3% | 8.7% |
| Ticino | 3.8% | 3.8% | 4.3% |
| **Urbanization**[22] | | | |
| highly and moderately urbanized centres | 61.2% | 59.3% | 61.0% |
| small urban centres | 8.9% | 10.1% | 10.4% |
| communes of urbanized centres | 11.6% | 10.5% | 10.2% |
| communes of small urban centres | 8.6% | 9.0% | 7.8% |
| communes remote from urbanized centres | 9.7% | 11.1% | 10.7% |
| **Civil status (%)**[23] | | | |
| single, never married | 42.5% | 43.0% | 44.8% |
| married | 47.1% | 48.0% | 44.4% |
| separated | 1.4% | 1.1% | 1.0% |
| divorced | 6.5% | 5.9% | 5.9% |
| widower/widow | 2.5% | 2.0% | 3.9% |
| **Children in household %**[24] | 59.2% | 63.9% | 60.2% |
| **Employment (%)** | | | |
| active occupied | 60.4% | 63.8% | 63.1% |
| unemployed | 1.1% | 1.8% | 2.1% |
| not in labour force | 38.5% | 34.4% | 34.8% |
| **Owner residence (%)**[25] | 51.8% | 50.4% | 45.4% |
| **Mean satisfaction with health (0-10)** | 8.40 | 8.28 | 8.19 |
| **Participate in clubs (%)** | 60.0% | 53.8% | 47.6% |
| **Mean general trust in people (0-10)**[b] | 6.01 | 5.58 | 5.37 |
| **Mean interest in politics (0-10)** | 5.41 | 4.88 | 4.62 |

[a])Region: Lake Geneva: VD, VS, GE; Middleland: BE, FR, SO, NE, JU; North-west Switzerland: BS, BL, AG; Zürich; East Switzerland: GL, SH, AR, AI, SG, GR, TG; Central Switzerland: LU, UR, SZ, OW, NW, ZG; Ticino. See Appendix A for a list of cantons.
[b]) Asked from 2002 onwards

22 Difference between always and irregularly participating is not significant (Cramers' V, p=.12)
23 Difference between always and irregularly participating is not siginificant (Carmers' V, p=.45)
24 Difference between always participating and dropped out is not significant (Cramers' V, p=.43)
25 Difference between always and irregularly participating is not significant (Cramers' V, p=.29)

Table 2 Demographic characteristics and social involvement attitudes and behaviour by response pattern (SHP II, 2004-2013)

| | Always responding n = 1372 | Responding irregularly n = 1441 | Dropped out n = 1968 |
|---|---|---|---|
| **Sex (%)**[26] | | | |
| men | 44.2% | 47.5% | 47.9% |
| women | 55.8% | 52.5% | 52.1% |
| **Age (%)** | | | |
| 14 to 19 | 17.3% | 22.9% | 18.1% |
| 20 to 29 | 9.8% | 11.3% | 18.4% |
| 30 to 39 | 19.5% | 18.0% | 17.1% |
| 40 to 49 | 21.6% | 18.5% | 18.1% |
| 50 to 59 | 14.4% | 14.2% | 12.3% |
| 60 + | 17.3% | 15.1% | 15.9% |
| **Education (%)** | | | |
| compulsory school | 22.8% | 32.2% | 29.6% |
| upper secondary level (vocational) | 35.8% | 37.7% | 37.2% |
| upper secondary level (matura) | 10.4% | 8.1% | 10.2% |
| tertiary level (vocational) | 17.3% | 13.1% | 13.5% |
| tertiary level (university) | 13.7% | 9.0% | 9.5% |
| **Swiss nationality**[27] **(%)** | 92.2% | 90.9% | 85.1% |
| **Region**[28b] **(%)** | | | |
| Lake Geneva | 17.0% | 17.1% | 19.8% |
| Middleland | 26.7% | 24.4% | 23.1% |
| North-west Switzerland | 14.4% | 12.8% | 13.4% |
| Zurich | 18.8% | 17.5% | 18.7% |
| East Switzerland | 11.9% | 13.0% | 13.5% |
| Central Switzerland | 8.6% | 11.0% | 8.5% |
| Ticino | 2.6% | 4.1% | 3.0% |
| **Urbanization**[29] | | | |
| highly and moderately urbanized centres | 63.0% | 62.6% | 63.7% |
| small urban centres | 9.5% | 10.0% | 9.9% |
| communes of urbanized centres | 10.9% | 10.1% | 9.3% |
| communes of small urban centres | 7.7% | 6.7% | 6.5% |
| communes remote from urbanized centres | 8.9% | 10.5% | 10.7% |
| **Civil status (%)**[30] | | | |
| single, never married | 38.2% | 41.4% | 44.3% |
| married | 48.5% | 48.2% | 42.8% |

[26] Difference between always and irregularly participating is not significant (Cramer's V, p=..08)

[27] Difference between always and irregularly participating is not significant (Cramer's V, p=.22)

[28] Differences between always participating and dropped out is not significant (Cramer's V, p=.10)

[29] Differences between groups are not significant (Cramers' V, dropped out p=.16, irregularly responding p=.49)

[30] Difference between always and irregularly participating is not significant (Cramer's V, p=.12)

| | | | |
|---|---|---|---|
| separated | 1.8% | 1.5% | 1.9% |
| divorced | 7.8% | 5.7% | 6.7% |
| widower/widow | 3.6% | 3.3% | 4.3% |
| **Children in household %**[31] | 51.1% | 59.9% | 54.3% |
| **Employment (%)** | | | |
| active occupied | 67.2% | 63.6% | 67.5% |
| unemployed | 1.5% | 2.4% | 3.5% |
| not in labour force | 31.3% | 33.9% | 29.1% |
| **Owner residence (%)** | 49.2% | 53.7% | 44.7% |
| **Mean satisfaction with health (0-10)**[32] | 8.29 | 8.17 | 8.23 |
| **Participate in clubs (%)** | 54.7% | 49.1% | 43.8% |
| **Mean general trust in people (0-10)** | 5.71 | 5.31 | 5.02 |
| **Mean interest in politics (0-10)** | 5.66 | 5.07 | 4.87 |

[b])Region: Lake Geneva: VD, VS, GE; Middleland: BE, FR, SO, NE, JU; North-west Switzerland: BS, BL, AG; Zürich; East Switzerland: GL, SH, AR, AI, SG, GR, TG; Central Switzerland: LU, UR, SZ, OW, NW, ZG; Ticino

31 Difference between always participating and dropped out is not significant (Cramer's V, p=.06)

32 Difference between always participating and dropped out is not significant (T-test, dropped out p=.16)